

THE
YEAR-BOOK OF
TREATMENT
FOR 1893.



TRADE MARK REC'D

HAMILTON'S "ELASTIC" DRESS SUIT.

(Lined throughout with Silk.)

£5 - 5 CASH.

We make a *spécialité* of above, and guarantee these Suits to be absolutely best value in London.

General Illustrated priced Catalogue free on application.

HAMILTON & Co.,

CIVIL AND COURT TAILORS,

21, BEDFORD STREET, STRAND.

TRADE



MARK.

The Association for the Supply of Pure Vaccine Lymph,

12, PALL MALL EAST, LONDON, S.W.

SOLE AGENTS FOR

DR. WARLOMONT'S CALF VACCINE.

Tubes, 2s. each; Half Tubes, 1s. each. Pomade in Vials, 5s.

HUMAN VACCINE (from Healthy Children only, microscopically examined and source quoted). Tubes, two-thirds full, 1s. 8d.; Tubes one-third full, 1s. each.

Tubes two-thirds full (same as those mentioned above, but without source) in



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DARKE, SECRETARY.

DR. RENNER'S ESTABLISHMENT
FOR
VACCINATION
WITH
CALF LYMPH,
186, MARYLEBONE ROAD, LONDON, N.W.

VACCINATION FROM THE CALF DAILY, FROM 11 TO 12 O'CLOCK.

PRICE OF CALF LYMPH.

TUBES	{ Large	...	...	...	2s. each, or 3 for 5s. 6d.
	{ Small	...	...	...	1s. each, or 3 for 2s. 9d.
POINTS	{ Large	...	...	...	1s. each, or 3 for 2s. 6d.
	{ Small	...	...	...	9d. each, or 3 for 2s.
SQUARES	...	...	...	...	2s. 6d. each.

Registered Telegraphic Address: "Vaccine, London."

Sent on receipt of remittance addressed to the Manager of the Establishment.

RUPTURE

REPORTS of *Lancet*, *British Medical Journal*,
Hospital Gazette, *Medical Press*, *Practitioner*,
Chemist and Druggist, *Homœopathic Review*,
Illustrated Medical News, etc., on application to
B. F. ATKINSON, 7, MILL ST., HANOVER SQ., LONDON, W.

ATKINSON'S PATENT TRUSS
FOR THE
RADICAL CURE of RUPTURE
IS A
Certain Remedy.

Where personal attendance is given, satisfaction is guaranteed, a month's trial of the Instrument allowed, and, if not approved of, the money returned.

EXTRACTS FROM LETTERS, THE ORIGINALS OF WHICH CAN BE SEEN ON APPLICATION.

"When I came to you I seemed to be drifting towards the necessity of a radical operation. Fortunately, your ingenuity came to my aid, and you successfully overcame the peculiarity of my case by a truss which you specially constructed. After wearing it for six months (when it effectually all the time prevented any descent of the bowel), the hernia failed to appear on standing up without the truss, even when I coughed." M.D. Lond., F.R.C.P., M.R.C.S., L.M., L.S.A.

"Your truss is more curative than any I know of." M.D. Dunelm.

"I may state that I heard from Mr. Beale, who had a truss from you more than a year ago; he tells me his rupture has not been down once in all that time." M.D., Q.U.I., M.Ch.

"I must congratulate you on your success therefore, and I need scarcely assure you that, in future, your spécialité alone will be recommended by me." M.B. Edin., C.M.

"The truss answers admirably, and is a great improvement on the old patterns."

M.R.C.P. Edin., L., L.M., M.R.C.S. Eng., L.S.A.

"I have found great comfort in the truss, and so has my patient with his."

L.R.C.P., M.R.C.S., L.M.

"The truss is most satisfactory."

M.D. Lond., M.R.C.S., L.S.A.

"Hants, 18th November, 1832.

"DEAR SIR,—You supplied me with your patent truss about eight months ago, to relieve a very bad case of scrotal hernia that had baffled French and English experts for years. With great pleasure I record my perfect cure through wearing your ingenious truss. This unexpected result is the more noteworthy considering my advanced age (77) and my rough and tumble experiences connected with the opening of the Overland Route to India, of which I am the only living representative.—With best wishes, faithfully yours, A. N. DE P., late Waghorn & Co., Egypt.

"To Mr. B. F. Atkinson."

LITHOLYDIUM ZACHARIÆ.

The attention of the Profession is directed to

Litholydium Zachariæ,

A MIXTURE OF

ANTILITHIC SUBSTANCES

PREPARED ACCORDING TO THE FORMULA PRESCRIBED BY

DR. ZACHARIAS, of Berlin,

SPECIALIST in KIDNEY DISEASES, and used by
him in his practice.

Dr. Zacharias claims the following advantages for this preparation :—

Litholydium prevents the formation of an excess of uric acid in the system whilst it also promotes the rapid removal of that which is normally produced.

Litholydium corrects the defective action of the liver and kidneys, and does not act injuriously on any other organ.

Litholydium dissolves within a short time urate deposits and gravel so perfectly as to stop, within a few days, the bleeding of the kidneys.

Litholydium promotes the easy removal of solid deposits which have not been completely dissolved.

Litholydium by its solvent action, in time, penetrates to the very nucleus of any stone formation in the bladder or kidneys.

Litholydium cures the most obstinate cases of catarrh of the bladder.

Litholydium allays and prevents lumbago.

Litholydium prevents the accumulation of uric acid and urates in the joints.

DIRECTIONS FOR USE.

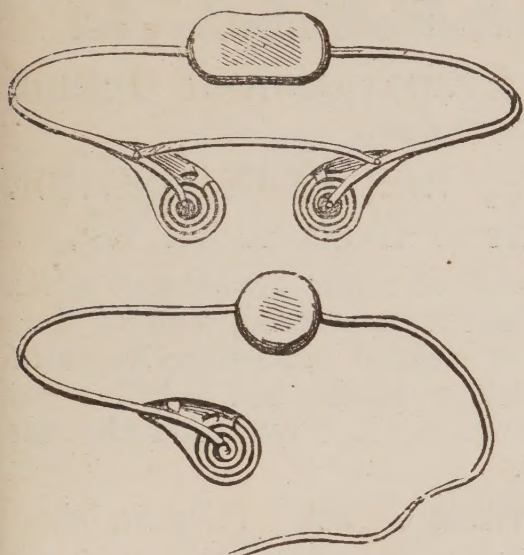
The **Litholydium** has to be taken three times daily; at 9 a.m., 3 p.m., 9 p.m., each time a teaspoonful, dissolved in a wineglassful of lukewarm water, one hour before, or two hours after meals.

NOTE.—*It is not claimed for Litholydium that it will remove the causes of muscular rheumatism, but that it is most efficient in cases of chronic rheumatism of the joints.*

Any doctor desiring information as to the composition of Litholydium is invited
to write to the English Agents :—

BARCLAY & SONS, Ltd, 95, Farringdon St., London, E.C.

The Latest Improvement in Trusses.



WM. COLES & CO.,

INVENTORS AND PATENTEES

OF THE

Spiral Spring Truss,

Also Special Adaptation

FOR THE

Support of Floating Kidney.

225, PICCADILLY, W. (*late 3, Charing Cross*),

Two Doors from "The Criterion."

PARTICULARS, &c., GRATIS BY POST.

Established 1821.

INCORPORATED BY



ROYAL CHARTER.

JAMES MURRAY'S ROYAL ASYLUM, PERTH.

CHAIRMAN ... THE VISCOUNT STORMONT.

This Asylum is beautifully situated in the immediate vicinity of Perth, in the midst of extensive PLEASURE GROUNDS, which are surrounded by the fields of the Home FARM.

The main building has been modernised, and enlarged by the addition of TWO WINGS for the reception of acute cases, fitted with most recent improvements in the means of treatment of the Insane.

The MANSION HOUSE of KINCARRATHIE, in the neighbourhood, and Houses at the SEASIDE and in the PERTHSHIRE HIGHLANDS, form part of the establishment.

The DISTINCTIVE FEATURES of this Institution are—that it is the only Royal Asylum in Scotland which contains no Paupers; that it receives a limited number of Patients, permitting of Individualised Treatment; and that it is developed as a Central Hospital for the treatment of acute and difficult cases, with Succursals Houses for those less seriously affected.

Special attention is devoted to the OCCUPATIONS of the Patients; there are ample means of AMUSEMENT; and the utmost LIBERTY, with due regard to safety, is accorded.

The Directors refer the friends of those requiring treatment to the REPORTS OF THE COMMISSIONERS IN LUNACY.

PHYSICIAN SUPERINTENDENT—DR. URQUHART.

NEPENTHE.

The Safest and Best Preparation of Opium.

PRODUCES NEITHER

Headache, Sickness, nor Constipation.

Dose—THE SAME AS THAT OF TINCTURA OPII, P. B.

In spite of the large number of "new hypnotics" which have been recently introduced and recommended, some of them very highly, to the notice of the medical profession, Nepenthe still holds its position as THE hypnotic and sedative par excellence; it is constantly increasing in favour, and the sale is larger now than it ever was.

PREPARED EXCLUSIVELY FROM OPIUM. Price 8s. 6d.

**Nepenthe, Double Strength, and Glycerole of
Nepenthe (eight times the single strength)**

FOR HYPODERMIC USE.

FERRIS & COMPANY,
SOLE MANUFACTURERS.

GLYCERINE & CODEIA JELLY (FERRIS).

Prepared at the suggestion of DR. G. S. MAHOMED, of Bournemouth, and recommended as a pleasant and serviceable agent in the treatment of chronic laryngitis, phthisical cough, etc.

From the *Practitioner*:—"FERRIS & Co.'s CODEIA JELLY.—This is a pleasant-looking and pleasant-tasting preparation of Codeia with Glycerine, Citric Acid, and Gelatine. We have tried it in a case of phthisis with hacking laryngeal cough, in which other remedies caused nausea. The soothing effect was marked, and the patient was so agreeably surprised, that the jelly was finished almost too quickly. There is much shrewdness in the remark of Dr. MAHOMED, of Bournemouth, who says of such preparations that 'patients take them more readily than ordinary medicines, and if unrelieved are less prone to be discouraged.' Many practitioners will welcome this useful compound."

In Glass Jars, 2/- each; 21/- per doz.

FERRIS & COMPANY, BRISTOL,
Wholesale and Export Druggists.

FIVE PRIZE MEDALS AWARDED.

"TABLOIDS" of Compressed Drugs,

As prepared by BURROUGHS, WELLCOME & Co.,
Are "PURE, PERMANENT, PALATABLE and PORTABLE."

TABLOIDS IN GENERAL.

"Tabloids" of Compressed Drugs afford a means of *economising time, trouble, and expense*, being easily prescribed and dispensed, with the greatest degree of accuracy in dosage attainable.

The tire general medical practitioner, after a hard day's work at visiting, considers them a boon for dispensing, since they facilitate immensely the quick despatch of the medicines, and enable him to secure a little rest from his arduous duties. "Tabloids" are supplied in neat little vest-pocket bottles, suitable for dispensing, and in bottles of 100, from which they may be dispensed in any quantity desired.

TINCTURE "TABLOIDS."

These "Tabloids" are made from fresh standardised Tinctures of the various drugs, and are uniformly accurate in dosage. Where the exhibition of single drugs can be admitted, these "Tabloids" are immeasurably superior to the liquid preparations. A very important aspect of these "Tabloids of Tinctures" is their value to the devotees of total abstinence, for they are absolutely free from alcohol. The Tinctures more generally prescribed are already represented in the accompanying list, and others will be added. Tincture "Tabloids" may be relied upon to be thoroughly and exactly representative of their respective tinctures; do not change, and are, consequently, always active.

SUGAR-COATED "TABLOIDS."

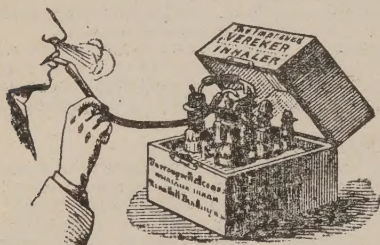
Those distinguished by a star (*) may be had beautifully coated with pure white sugar. The improved appearance of these "Tabloids" is not only acceptable to the physician, but is acknowledged by the pharmacist, and most highly appreciated by the patient. Hence their popularity.

LIST OF "TABLOIDS" PREPARED BY BURROUGHS, WELLCOME & Co.

- | | | |
|---|--|---|
| Aconite Tinct., 1 and 5 min. | Hydrarg. Iod. Rub., 1-20 gr. | *Quinine Sulphate, same strengths, sizes, and prices as Quinine Bisulphate. |
| Aloin, 1-10 gr. | Hydrarg. Iod. Vir., 1-8 gr. | Reduced Iron, 2 gr. |
| *Aloin, Compound—(Anti-Con- | Hydrarg. Perchlor., 1-100 gr. | Resorcin, 3 gr. |
| stipation). | *Hydrastia Comp. | *Rhubarb Comp. (Pill), 3 gr. |
| Ammon. Bromide, 5 and 10 gr. | Hydronaphthol, 3 gr. | Rhubarb Comp. Pulv. (Gregory |
| Ammon. Chloride, 3, 5, and 10 gr. | *Ichthyol, $\frac{2}{3}$ gr. | Powder), 5 gr. |
| Ammon. Chloride with Borax. | Ipecac. and Opium, $\frac{1}{4}$ and 5 gr. | Rhubarb and Soda, 5 gr. (Rhei |
| Antacid. (Magnes. Carb. Comp.). | (Dover Powder). | 3 gr.; Soda, 2 gr.; Zingiber, |
| Anti-Constipation (see Aloin | Ipecac. Powder, 1-10 and 5 gr. | Rhubarb, 3 gr. $\frac{1}{3}$ gr.) |
| Comp.). | Ipecac. Pulv. cum Antim. Tart., | Saccharin, $\frac{1}{2}$ gr. |
| Antifebrin, 2 gr. | aa 1-100 gr. | Salicin, 5 gr. |
| Antimony Tartrate, 1-50 gr. | Iron and Arsenic Comp. | Salol, 5 gr. |
| Antipyrin, 5 gr. | *Iron and Quinine Cit., 3 gr. | Santonin, $\frac{1}{2}$ gr. |
| Apomorphia Mur., 1-50 gr. | *Laxative Vegetable. | Soda-Mint, or Neutralising |
| Arsenious Acid, 1-100 and 1-50 gr. | Lithia Carbonate, 2 gr. | "Tabloids" (Soda Bicarb. 4 |
| Atropia Sulph. 1-100 gr. | *Lithia Comp. Dr. Hugh Lane's | gr.; Ammon. Carb., $\frac{1}{4}$ gr.; |
| Belladonna Tinct., 1, 5, & 15 min. | Formula. | Ol. Menth. Pip.) |
| Bismuth Subnitrate, 5 and 10 gr. | Manganese Dioxide, 2 gr. | Sodium Bicarbonate, 5 gr. |
| Bismuth and Soda, 5 gr. ($\frac{2}{3}$ gr. | Morphine Sulph., 1-20 and 1-8 gr. | Sodium Dithio-salicylate, 5 gr. |
| each). | Nasal, Alkaline. | Sodium Salicylate, 3 and 5 gr. |
| Blaud's Pill, 4 gr. | Nasal, Antiseptic and Alkaline. | Stomachic Comp. (Infusion Gen- |
| Blue Pill, 3 gr. | Naso-pharyngeal. Dr. Mac- | tian Co., 2 fl. dr.; Infusion |
| Borax, 5 gr. | naughton Jones' Formula. | Rhei, 2 fl. dr.; Sodium Bic., 5 |
| Caffein Citrate, 2 gr. | Nitro-glycerine, 1-100 gr. (See | gr.; Ol. Menth. Pip. $\frac{1}{2}$ gr.) |
| *Calcium Sulph., 1-10 gr. | also Trinitrine.) | Strophanthus (2 minims of |
| Calomel, $\frac{1}{2}$, 1-10, and 1 gr. | Nuxvomica Tinct., 1, 3, & 10 min. | Tinct. in each). |
| Camphor, Comp. Tinct. (Pare- | Opium Tinct., 2, 5, and 10 mins. | Sulphonol, 5 gr. |
| goric), 5 and 15 mins. | Opium, $\frac{1}{2}$ gr. | Sulphur Comp. (Sulph. Præcip., |
| Cannabis Indica Tinct., 5 mins. | Pancreatin (see Zymine "Tab- | 5 gr.; Potass. Bitart., 1 gr.) |
| Capsicum Tinct., 1 min. | loids"). | Sir A. Garrod's Formula. |
| *Cascara Sagrada, Ext., 2 gr. | Pepsin (Fairchild). | Tannin, $\frac{2}{3}$ gr. |
| *Cascara Comp. | Pepsin, Saccharated, 5 gr. | Tar, 1 gr. |
| *Cathartic Comp., U.S.P. | Peptonic, 3 gr (Pepsin, Pancre- | Test "Tabloids" (for prep. |
| Charcoal (Pure Willow), 5 gr. | atin. Lactophosph. Lime, p. | Fehling's Sol.). |
| Chloral-amid, 5 gr. | æq.). | Thirst. |
| Chloral Hydrate, 5 and 10 gr. | *Peptonic (special). (Zymine, | Tonic Comp. (Iron Pyrophos., |
| Cocaine, 1 gr. | 1 gr.; Calcii Lacto-Phosphate, | 2 gr.; Quinine, 1 gr.; Strych., |
| Cocaine with Potash and Borax | 1 gr., coated with Keratin. | 1-100 gr.) |
| (see Voice). | Pepsin Pure (Fairchild), 1 gr., | Trinitrine (Nitro-glycerine), |
| Copper Arsenite 1-1,000 gr. | is then added, and the "Tab- | 1-100 and 1-50 gr. |
| Creta Aromat. cum Opio Pulv., | loid" completed by a coating | Trinitrine and Amyl Nitrite. |
| Cubeb., Comp. [5 gr. | of pure white sugar.) | Trinitrine Comp. |
| Cuba & Belladonna Effervescent. | Phenacetin, 5 gr. | Urethane, 5 gr. |
| Dialysed Iron, 10 min. | Phloerpin Mar., 1-20 gr. | Voice (Potash, Borax, aa $\frac{2}{3}$ gr., |
| Digitalis Tinct., 1 min. | Podophyllin Resin, $\frac{1}{4}$ gr | and Cocaine). [each. |
| Digitalin, 1-100 gr. | Potass. Bicarb., 5 gr. | Warburg Tincture, 30 min. in |
| Diuretin-"Knoll," 5 gr. | Potass. Bromide, 5 and 10 gr. | Zinc Sulphate, 1 and 10 gr. |
| Dover Powder (see Ipecac. and | Potass. Chlorate, 5 gr. | Zinc Sulpho-carbolate, 2 gr. |
| Opium). | Potass. Chlorate with Borax. | Zingib. Fort. Tinc., 5 min. |
| *Ergotin, 3 gr. | Potass. Iodide, 5 gr | Zymine (Fairchild). |
| Euonymin Resin, 1-8 gr. | Potass. Nic. (Sal. runella), 5 gr. | Zymine Comp. (Fairchild) (Zy- |
| Exalgin, 2 gr. | Potass. Permanganate, 1 & 2 gr. | mine, 2 gr.; Bismuth Subnit. |
| Gualacum and Sulphur, aa 3 gr | Quinine Bisulphate, $\frac{1}{2}$, 1, 2, 3, | gr.; Pulv. Ipecac. 1-10 gr.) |
| Hydrarg. cum Creta, $\frac{1}{2}$ and 1 gr. | and 5 gr. | |
| Hydrarg. cum Creta, 1 gr.; with | *Quinine (Bisulph.), 1, 2, 3, & 5 gr. | |
| Dover Powder, 1 gr. | | |

THE IMPROVED VEREKER CHLORIDE OF AMMONIUM INHALER.

The value of Ammonium Chloride Vapour in the treatment of the affections of the mucous membrane of the throat is widely appreciated, but it is absolutely necessary



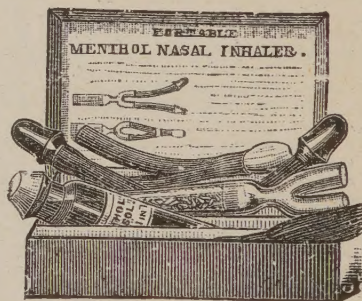
VEREKER'S IMPROVED INHALER.

that the vapour be delivered perfectly pure; free, that is, from both alkaline and acid excess. It is claimed for the Vereker Inhaler, in its improved form, that the neutrality of the vapour, once the apparatus is properly set, is absolutely to be relied upon, and it may be inhaled without the slightest irritation in all catarrhal conditions of the fauces and pharynx. To meet special cases, any volatile body desirable may be used with the Ammonium Chloride Vapour, by adding it to the liquid in the wash-bottle. Case 5s. each. The "Vereker" is furthermore in a really portable form, easily charged, and, once properly arranged, contains a sufficiency of material to last for a con-

siderable number of inhalations. Supplied to the Medical Profession in neat cases, at 5s.; retail, 7s. each.

THE B. W. & Co., ORO-NASAL MENTHOL INHALER.

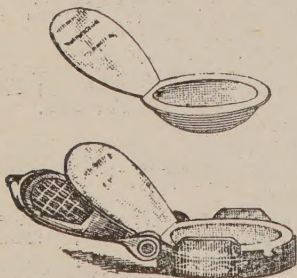
For the effective use of Menthol in the treatment of irritable, inflamed, or catarrhal conditions of the naso-pharyngeal mucous surfaces, the Oro-nasal Inhaler, as suggested by Dr. Macnaughton Jones, answers every purpose. As its name indicates, it includes both a nasal and an oral attachment, and can be used for the inhalation of other medicaments as well as menthol. Will be found of excellent service in the treatment of hay fever, rhinitis, ozæna, &c. A bottle of menthol solution, with camel-hair brush, is included in the case, which, complete, is supplied to the Medical Profession at 3s. each. We shall be glad at all times to forward leaflets and pamphlets bearing on the above apparatus to any Medical man who may address us.



WAFER MEDICINE CACHETS (B., W. & Co.).

(E. GORLIN'S PATENT.)

An ingenious yet simple method of taking disagreeable medicines in the form of liquid, powder, or "Tabloids." To charge a Cachet, which is composed of pure rice starch, it is spread out in the folders as shown in the accompanying illustrations, and the contents placed in the cup. The lid of the Cachet is then wetted, and brought over by means of the lid of the folder. When pressed on the top of the cup it is completely sealed, and prevents egress of the contents into the mouth. Just prior to taking the Cachet, it should be dipped in water and then placed on the tongue, and may then be easily swallowed with a little water.



B., W. & Co. Wafer
Medicine.

The BRITISH MEDICAL JOURNAL says they "are well adapted for the administration of unpalatable powders or liquids."

The LONDON MEDICAL RECORDER reports:—"They will be welcome to medical men and to their patients, and also to pharmacists, whose labours they will lighten."

Supplied to the Medical Profession in boxes of 100, at 1s. 2d. per box.

ABSORBENT MATERIAL.

Lawton's Absorbent Cotton Wool differs from the ordinary forms of cotton in that it possesses a beautiful downy flocculence. Its adaptability for surgical or gynecological work can be appreciated when we state that it will take up nearly 14 times of blood, water, or pus. Its absorbent power can easily be demonstrated by dropping a

ADVERTISEMENTS.

small tuft of it on water. It is highly recommended for the preparation of medicated filaments, tampons, or bougies, to carry such bodies as Creolin, Phenol or Phenol Compounds, Iodoform, &c. A simple immersion into a solution, and exposure to the atmosphere until dry, is all that is required for this purpose. Lawton's Absorbent Wool, carrying Eucalyptia or Pinol, or Terebene or Phenolised Compounds of these, answers remarkably well also as a filter in respirators. Issued in packets of 1 oz., 2 oz., 4 oz., and 16 oz., at 5d., 8d., 1s. 1d., and 3s. each.



ARTIFICIAL EAR DRUMS (WARD COUSINS).

These effective membranes, which consist of cone-shaped skeleton drums of a delicate texture, are highly recommended as a substitute for the natural drum in perforation of the natural membrane, and to assist the hearing in deafness caused by other affections; also as an antiseptic in disease of the middle ear attended with suppuration. These drums were exhibited and practically demonstrated in the Section of Otology at the Leeds meeting of the British Medical Association. They are inexpensive, and may be easily inserted by the patient. The drum when *in situ* causes no discomfort. They are made in three sizes, Nos. 1, 2, and 3, the last being the largest.

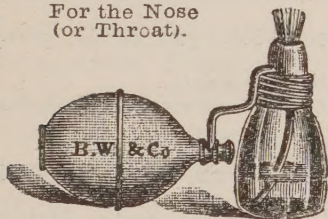
Supplied in boxes containing three dozen drums, at 9d. per box; retail 1s. Combination blunt probe and nippers for insertion and extraction, price 8d.; retail 1s.



THE PAROLEINE ATOMISERS.

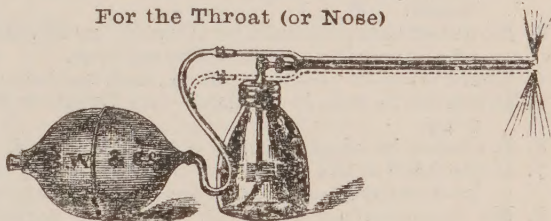
These elegant instruments are intended for applying to the naso-pharyngeal mucous membrane a fine spray of an oily solution, or of plain "Paroleine" (B. W. & Co.), which is a basic paraffin oil, free from odour, colour, and taste.

For the Nose
(or Throat).



The B. W. & Co. Naso-Pharyngeal Paroleine Atomiser, 3s. 5d. each.

For the Throat (or Nose)



The B. W. & Co. Post-nasal Paroleine Atomiser, 5s. 2d. each.

For use with these Atomisers, Paroleine has been found highly satisfactory. Paroleine is a perfectly colourless, tasteless, and odourless fatty paraffin oil, neutral in reaction. It is extensively used by laryngologists as a solvent for essential oils, stearoptenes, etc., for application in vapour form to the mucous surfaces of the respiratory tract.

The JOURNAL OF LARYNGOLOGY AND RHINOLOGY says:—"This instrument has delighted us. We have so often asked for a spray that would throw a fine vapour of an ointment or oily basis; and those which are offered are anything but satisfactory. The spray before us meets all our wants. No laryngologist's table will be complete without one of these beautiful sprays."—December, 1890.

THE PINOL EUCALYPTIA DRY INHALER.

This consists of a glass tube containing absorbent pine wood. The medicament is poured into the wide end of the tube until the medium is saturated; the patient then inspires from the mouth-piece end of the tube, and as the air is drawn through it becomes saturated with the vapour of the volatile inhalant. This little instrument may be used at all times without the usual precautions, and yields excellent results with the various inhalants employed for throat and chest treatment. Lately this little instrument has become remarkably popular as a palliative and even as a preventive against attacks in chronic asthma, the inhalants used in this case being a mixture of Pinol and Terebene, or Terebene and Eucalyptia. It has also been found of immense service in tropical regions, when used daily in connection with Eucalyptia, as a preventive against malarial attacks—of this we have lately received very striking testimony.

With the Pinol Eucalyptia Dry Inhaler is supplied to the Medical Profession a small box containing one bottle each of Eucalyptia and Pinol, at 1s. 2d. complete.



THE KEPLER SOLUTION OF COD-LIVER OIL in EXTRACT of MALT

Has attained the high reputation it enjoys among Physicians

BECAUSE

1. It is palatable.
 2. It is more readily assimilated than inferior imitations.
 3. It is well borne by the most debilitated stomachs.
 4. The diastase present assists the enfeebled digestive functions in the assimilation of starch food.
 5. The Kepler Solution is not merely a mixture, it is absolutely a solution of the Cod Liver Oil in the Malt Extract, and therefore the more easily digested.
 6. It is THE food in Consumption and wasting diseases.
- And because, as the BRITISH MEDICAL JOURNAL attested, "It is an ideal form for the administration of fat."

Supplied to the Medical Profession in $\frac{3}{4}$ lb. and $1\frac{1}{2}$ lb. bottles, at 1s. 8d. and 3s. each.

KEPLER EXTRACT OF MALT.

The value of Malt Extract in Medicine is undoubted—it only remains for the physician to be satisfied that the preparation offered to him answers to the following:

1. It should be prepared from the very best winter barley, and contain all the nutritive principles of the grain. This is imperative.
2. It should be evaporated *in vacuo*, and not in an open pan. This is indispensable—or instead of being pleasant the malt will possess a burnt or tarry taste and smell.
3. No substitution should be allowed—as of other cereals—for a part of the barley or glucose for a part of the maltose.
4. There must be absolute purity, and an absence of all adulterants.
5. It should be rich in diastase—the digestive ferment which converts starch into sugar.
6. It should be of substantial consistence, or it will be liable to turn sour.
7. If the heat in the process of manufacturing be raised too high, the diastase will be destroyed, and albuminoids coagulated.
8. No fermentation whatever should be permitted to take place, or the maltose will be partially converted into alcohol and carbonic acid, and a kind of beer formed.

It is thus seen that the superiority of a malt extract does not rest with one thing alone, but with many things—as the taste, nutritious properties, assimilability, purity, diastase, etc.

In the manufacture of the Kepler Extract, these points are carefully kept in view, so as to ensure the resulting preparation being up to the highest standard.

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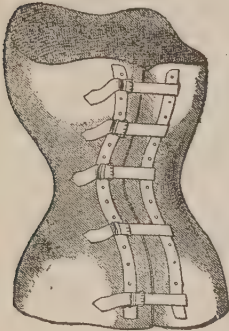
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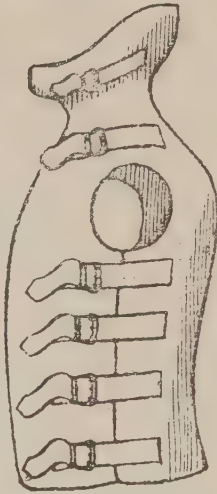
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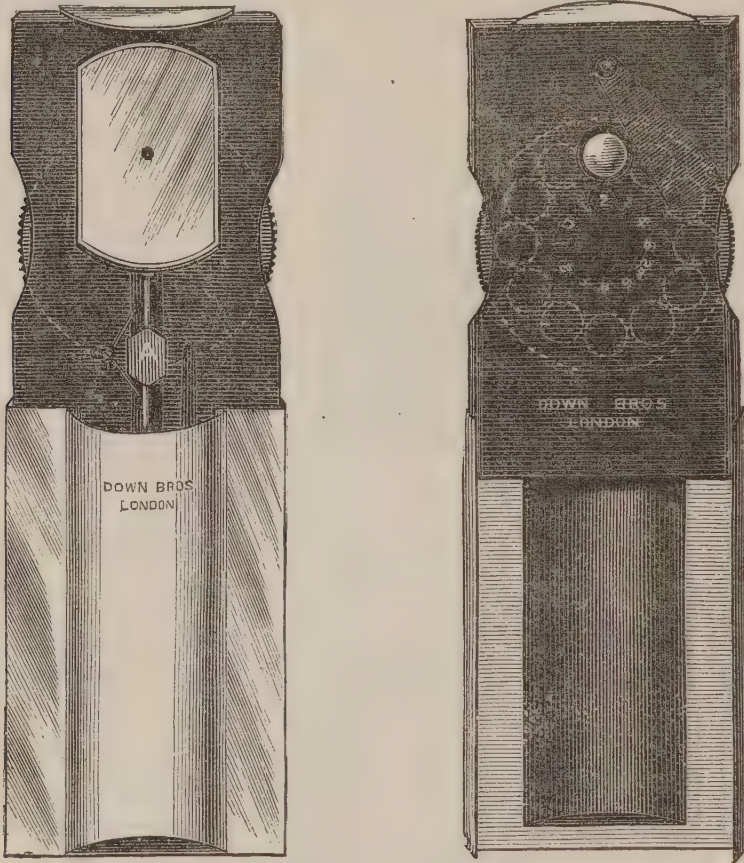
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P R E F A C E .

IN the present Edition (the ninth) of the "Year-Book of Treatment" there are two new articles.

"Anæsthetics" are now treated of in a separate article by Dr. DUDLEY BUXTON, instead of being, as hitherto, included in the article on "General Surgery."

There is also a separate article by Prof. W. H. CORFIELD, M.D., on "Public Health and Hygiene," a branch of medicine which is daily increasing in importance and scientific accuracy.

THE EDITOR.

January, 1893.

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THE
YEAR-BOOK OF TREATMENT
FOR 1893.

DISEASES OF THE HEART AND
CIRCULATION.

BY J. MITCHELL BRUCE, M.D., F.R.C.P.,

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of the Chest, Brompton.*

A CHRONICLE of the principal advances in the treatment of diseases of the heart and circulation during the past twelve months mainly takes the form of a summary of a number of general sketches of the subject by acknowledged authorities. Very few new drugs have been introduced to the notice of the profession for employment in cardiac diseases. Diet and other "general" methods have received some attention, but by no means so much as last year, when the literature belonging to our department was peculiarly valuable in this connection.

In our annual summaries during the past eight years, we have traced the introduction and trial, and occasionally the abandonment, of many novel methods and means of treatment, including Oertel's system, strophanthus, lactose, and barium chloride. The accounts of such trials, although they too often ended in disappointment, have constituted an interesting part of the annual literature of heart disease. On the other hand, we have regularly year after year chronicled the efforts that have been made to render more exact and more profitable our knowledge respecting drugs of established repute—digitalis, squill, sparteine, strychnine, etc.—respecting their active principles, their physiological actions, the most satisfactory preparations or forms in which they are to

be prescribed, and the many details connected with their selection, combinations, and time and methods of administration, which contribute essentially to their usefulness in individual instances. We shall find that on the present occasion an uncommonly large proportion of the literature with which we have to deal relates to the details of the action and uses of digitalis—acknowledged to be the first of cardiac remedies.

It is always more interesting, and, as a rule, it is more profitable, to discuss the subject of therapeutical advance from the side of pathology. To the pure pharmacologist and to the pharmacist drugs have very properly an interest of their own, for themselves and by themselves. The practitioner, however, has little or no occasion to study the action of medicines from this point of view. Drugs to him are remedies. His business is with disease. He discovers indications for a certain kind of medicinal action, and he goes to pharmacology to find it if he can. Unless his practice is entirely empirical or routine, the success of it hangs first and chiefly upon the correctness of his appreciation of the pathogeny of the case before him. Therefore in our present review we shall not hesitate to direct attention, as the occasion arises, to such points of a pathological and a diagnostic kind, in connection with diseases of the heart, as have a distinct bearing—present or prospective—on the use of remedies.

The subjects of the present section will be discussed in the following natural order :—

I. Acute Valvular Disease of the Heart.

II. The Establishment and Maintenance of Compensation.

III. Failure of Compensation, with special reference to the Selection of Remedies and the use of Digitalis.

IV. Functional Disorders of the Circulation, including Graves's Disease.

I.—ACUTE VALVULAR DISEASE OF THE HEART.

The most important contributions to this subject that have appeared since our last report, relate entirely to that severe and usually fatal kind of inflammation or destructive disease of the lining membrane of the heart, which is variously known as ulcerative, malignant or infectious endocarditis. Unhappily this is an affection which we are still practically unable to influence by treatment.

According to Dr. Frederick Taylor (*Guy's Hosp. Reports*, xlviii., p.

190), our present means of actively dealing with malignant endocarditis are entirely inadequate—we might almost say none at all; and probably all our hopes must be centred in the bacteriologist, present and future. We may, of course, follow the symptomatic indications. Temperature may be beaten down with antipyretics, but to very little purpose. If the temperature does rise to 103° or 104° , it will almost certainly come down within a few hours, and if we beat it down it will go up again in a few hours. The persistent use of these drugs will probably only result in delaying the late afternoon rise till the evening or midnight. Sweating may be checked by a drop of liquor atropinæ sulphatis at night or other suitable time. Pain may be relieved by opium; and general support may be given by what must still be called tonics, such as iron, quinine, nux vomica, and good food. But Dr. Taylor would not give quinine as an antipyretic, nor as an antiperiodic (if there are such things). Nor has he hitherto been sanguine as to any permanent good, though he has used them, from sulpho-carbolates or benzoates employed as antiseptics. There seems to Dr. Taylor no reason why we should expect to get better results from antiseptics in this disease than we do in phthisis, diphtheria, scarlatina, and a number of other infective disorders. Perhaps the doses have not been large enough, and at present it must be allowed that this offers the only chance of influencing the disease, apart from the general support already mentioned.

Goldscheider (*Deut. Med. Wochenschr.*, No. 30, 1891) demonstrated at a meeting of physicians in Berlin a valuable case of ulcerative endocarditis, which showed a remarkably rare form of embolism. Our readers will remember that the spleen, the kidneys, and the brain are the chief seats of embolism in this disease, but that, perhaps, no part of the body is free from this complication. The ulcerative endocarditis, in the present instance, followed articular rheumatism; and besides numerous infarcts in lungs, spleen, and kidneys, it gave rise to an embolism of the basilar artery at the point where it divides into the two profunda cerebri arteries. The left profunda also presented extensive thrombosis. With the exception of contraction of the left pupil, the embolism produced no distinctive group of symptoms, but there was at first a somnolent, passing into a comatose condition in which the patient (a woman) died. This coma may be explained as a consequence of anæmia of the cerebral cortex, resulting from the plugging of a large vessel. But another explanation of the somnolent and comatose condition may be given. It is well known that if the neighbourhood of the third

ventricle (central grey substance) is damaged, perhaps through interruption of the sensory and motor relations of the cortex and peripheral centres, sleep arises. In the foregoing case the parts surrounding the third ventricle were chiefly affected.

His (*Berlin. Klin. Wochenschr.*, No. 40, 1892) records a case of ulcerative endocarditis occurring immediately after an attack of gonorrhœa—a connection which appears to us to deserve the careful attention of our readers, particularly with the existence of thrombosis of the pudic veins. The patient, a lad of 19, suffered in the middle of February from discharge, which was readily cured in three weeks by rest in bed and a sublimate injection. He suffered no pain in the perineum or testicle, but had marked chordee. Towards the end of March, he was exposed to severe cold and great exertion, and on the following day he had a shivering. Four days later he showed numerous reddish spots on the face, arms, and trunk. These proved to be small hæmorrhages. The heart was enlarged, with a loud blowing systolic murmur over the apex; the spleen reached to the costal margin. The pulse was 104; the temperature 104.8° ; and the urine normal. The fever was of the continued remittent type, ranging from 105° to 101.6° . Examination of the blood showed nothing abnormal. Deafness came on two days later. In less than three weeks from the onset, the patient had diarrhœa, marked thirst, and a remittent high temperature; and he was becoming dull and apathetic, taking no notice of the presence of strangers. A week later a further crop of spots had made their appearance, and the heart had still further increased in size, while the sounds and bruit were no longer clear. A few days afterwards œdema of the legs set in, the spleen became palpable, and the patient died suddenly. At the post-mortem examination there were found multiple cutaneous hæmorrhages, œdema of the lungs, ecchymoses of the pleura, and minute hæmorrhages beneath the pericardium and endocardium. There was ulcerative endocarditis of the aortic valve, and a puriform softened thrombus at the apex of the heart. Infarcts were discovered in one kidney and in the spleen. In the pudic plexus numerous old venous thrombi were seen, and small petechiæ in the testicles. In the vegetations of the valve, numerous cocci were found, of the form and size of the gonococcus, and showing its staining reaction to Gram's method. None, however, were found in the infarcts, and inoculation in animals produced no result. This appears to be one of those rare cases in which gonorrhœa leads to a grave pyæmic affection. In the course of an attack of slight intensity, there form septic thrombi in the veins of the prostatic and pudic plexus from which infection

spreads. The process is first localised in the aortic valves—latent to begin with. Then after intense excitement and severe chilling, the ulcerative endocarditis manifests itself in cutaneous emboli, which are accompanied by rigors, and the appearance of a hyperæmic septic rash. The further course is that of a pyæmic process : septic emboli in spleen, kidneys and lungs, multiple hæmorrhages under the serous membranes and in numerous organs, interstitial inflammation of the heart-muscle, and finally cardiac weakness which leads to death.

II.—THE ESTABLISHMENT AND MAINTENANCE OF COMPENSATION.

In an account of the course of simple endocarditis, or rather of its termination in valvular lesion, **Liebermeister**, in a series of lectures on Heart Disease (*Deutsch. Med. Wochenschr.*, Nos. 19 and 26, 1891) mentions a fact very rarely regarded : that after the disappearance of the endocarditis a state of disturbed compensation may next appear, until the compensated condition of the heart disease is permanently established, for which, indeed, a considerable amount of time is necessary. Compensation is defined as a state of the circulatory apparatus in which the general volume of the circulation ("*die allgemeine Circulationsgrösse*"), that is, the quantity of blood passing through any total transverse section of the system in a given time, attains the normal. It therefore chiefly arises in this way, that the chamber of the heart which drives the blood against the incompetent valve undertakes a larger amount of work to respond to the requirements of the normal mass of blood, and consequently it hypertrophies. Thus the aortic valvular lesions are compensated by the left ventricle ; but those of the mitral, on account of the left auricle being too weak to compensate the damage by its hypertrophy, require the assistance of the right heart.

As regards the individual valvular lesions, there are some points here in which **Liebermeister** appears to take a position peculiar to himself. In the case of aortic insufficiency he insists on the aid or help of the right heart in establishing compensation. Dilatation of the left ventricle by the regurgitating blood-stream seems to him to be an impossibility ; the regurgitating blood under strong pressure can only hinder the inflow of blood from the auricle which takes place under a low degree of pressure. It follows that here also, as well as in the case of mitral lesions, in order to develop sufficient pressure from the auricle, the right

ventricle should lend its aid, which only fails when the left ventricle is unduly distended. Without this aid it is inconceivable, says Liebermeister, that enlargement of the left ventricle should occur.

As a sequel to these observations on the pathology of heart disease, Professor Liebermeister (*Centrblt. f. klin. Med.*, No. 34, 1892) treats of the therapeutics of cardiac lesions. In the first place, the *establishment* of the highest possible degree of compensation must be aimed at; and it must further be a matter of care that this compensation should be *maintained* as long as possible. In regard to the *establishment* of the highest possible degree of compensation, the author holds strongly that it is a grave error to make those sections of the heart, through the hypertrophy of which compensation must be brought about, unduly hypertrophic by means of heart gymnastics. The hypertrophy which is necessary for compensation establishes itself unaided, and in sufficiently exact proportion in individual cases according to the degree of retardation of the circulation. Furthermore, it is necessary in cases of stenosis, and especially in cases of insufficiency, which require a longer time for the establishment of compensation, that all excessive strains of the heart should be avoided; and the patient for this purpose should be kept in bed, on a regulated diet, until the hypertrophy establishes itself. In cases of insufficiency, a corresponding treatment of the disturbance of compensation may be still further required, before such important disturbance has become actually established. For the *maintenance* of compensation it is of the utmost importance to take care that too great demands are not made on the heart. By means of very cautious and gradual exercise, light passive gymnastics, walking on level ground and moderate climbing, one can accustom the heart to greater exertion. The knowledge of the exact limit of exercise which must not be passed depends not so much on the judgment of the physician as on the subjective symptoms of the patient, and is acquired by the occurrence of palpitation and shortness of breath. The author holds it especially reprehensible, if despite these symptoms the patient will persist in walking further or ascending higher. It may safely be asserted, he says, that in the last seven years many patients have thus been urged on to their death.

Further, for the establishment and maintenance of compensation, the nourishment of the heart-muscle and, with it, the general nutrition, are of the greatest importance.

III.—FAILURE OF COMPENSATION; THE SELECTION OF REMEDIES; THE USE OF DIGITALIS, ITS ACTIVE PRINCIPLES AND ITS SUCCEDANEA.

The process of disturbance of compensation is discussed by **Liebermeister** on somewhat new lines (*Deutsch. Med. Woch.*; and *Centrblt. f. klin. Med.*, No. 9, 1892). It is developed, according to him, as a lessening of the general mass of the circulation. This leads in the next place to diminished fulness of the vessels of the great circulation, and lowered blood pressure within them. Hence there is absence of turgidity, and even pallor, of the skin, before the onset of cyanosis; the last is a result of increased fulness and heightened blood pressure in the systemic veins. The two events together occasion dropsy and all the symptoms of engorgement. Therewith are associated defective nourishment of individual tissues and of the whole body, irregular distribution of body temperature, thrombosis in the course of the vessels, and, finally, enfeeblement and paralysis of the heart.

Proceeding to discuss the treatment in general of failure of compensation in valvular disease, **Liebermeister** says that when once disturbance of compensation has arisen, absolute rest in bed for a prolonged period is necessary, by which alone the compensation will frequently again be fully established, through gradual increase of the urinary secretion and lessening of the dropsy. Should, however, these measures fail, digitalis and its substitutes, which all produce similar effects, may be resorted to.

The best agent, that most general of application and the most reliable, is digitalis; but it should not be forgotten that a condition of tolerance, of insusceptibility to digitalis, is soon established. To obtain the best results, the drug should not be continuously administered for a period longer than three or four weeks, and its administration should not be resumed until an interval of four weeks has elapsed after its withdrawal. The longer the interval that can safely be allowed to elapse, the better the results, both immediate and remote. If the valvular defect be great, or if the muscular fibre of the heart be degenerate, digitalis may fail to effect compensation. In some cases in which digitalis fails, one of its congeners, such as *strophanthus*, *convallaria* or *caffein*, may succeed. *Strychnine* or *atropine* may prove of service. *Calomel* in small doses acts admirably as a diuretic. Laxatives find a useful place in treatment. *Diaphoresis* may be serviceable, though care must be observed that the temperature of the patient

be not raised above 102.5° F. Paracentesis may be necessary to remove accumulations of fluid; multiple puncture to diminish the degree of anasarca (*see* "Year-Book" for 1891, p. 21). A dry diet may accomplish like results, but it cannot be rigidly enforced.

The best diet for patients suffering from disease of the heart is a mixed one in which the protein substances in some degree preponderate; a diet rich in milk is especially to be recommended. Professor Liebermeister considers that the advice which some practitioners give to patients with heart disease, to drink as little fluid as possible, is quite a mistaken one. It is founded on an erroneous theory, and is refuted by everyday experience. But all alcoholic drinks are to be strongly condemned, and coffee and tea must only be taken very weak. Tepid baths, or brief applications of cold to the præcordia, may be sedative to an over-acting heart. Alcohol, ammonia, or camphor may be required as stimulants. Under certain conditions of embarrassed circulation, when other measures have failed, brilliant, though perhaps only temporary, results may be obtained by free venesection. Venesection is indicated by manifestations of otherwise irremediable blood-stasis, including symptoms of pulmonary and of cerebral œdema; by the failure of digitalis and its allies; or by want of time for their employment. When degeneration of the myocardium co-exists with valvular lesions, good may be accomplished by the employment of nitroglycerine. The injunction to treat the patient and not the disease applies with especial emphasis to cases of valvular lesion of the heart.

It is very interesting to compare with these recommendations of a distinguished Continental authority the therapeutical methods of Dr. James Little, of Dublin (*The Birmingham Medical Review*, vol. xxxi., p. 10, 1892). In an address on the practical use of cardiac remedies in the management of chronic diseases of the heart, this physician enters fully into his experience of the utility of our various remedial measures. Dr. Little enjoys a thoroughly established reputation as a practical therapist, and the many methods which he lays before us in minute detail deserve the close attention of our readers. In the treatment of failure of the heart he naturally gives a prominent place to abstraction of blood. In over-distension of the cardiac cavities the removal of blood will give great relief. Leeches may, according to circumstances, be applied to the anal region, over the mastoid cells, or on either side of the sternum on a level with the third inter-spaces and over the ensiform cartilage. We should always select vigorous leeches, and staunch all oozing when they are removed.

Some patients have a terror of loss of blood ; in such cases cupping-glasses may be applied to the back of the chest, or a blister three inches square applied over the ensiform cartilage, so as to obtain a copious flow of serum. Next to the abstraction of blood in these cases, says Dr. Little, is a purgative dose of calomel. It is best given on an empty stomach, and should be followed in eight hours by from two to six drachms of sulphate of sodium in a little hot water.

The question of feeding must next be raised and settled. In cases of over-full cavities advantage will attend considerable limitation of the ingestion of fluid. Solid food is not digested, but, on the other hand, copious drinks do great harm. Two to three ounces of either beef tea or chicken tea, or a beaten-up egg, or a small cup of junket, every three hours, will usually be sufficient.

What posture are these patients to occupy ? If their own inclination be consulted, the answer is at hand—the sitting posture out of bed. Dr. Little's advice on this subject is to the point and thoroughly sound. Such sufferers ought to remain for several nights pillowed up in an armchair, instead of making ineffectual efforts to sleep in bed. The blood reaching the heart by the ascending cava does not then so readily flow into the already too-full right auricle. Moreover the production of the œdema of the lower extremities thereby induced, alarming though it may be, and the withdrawal of the serum by puncture, are measures calculated to relieve the over-full heart.

The administration of drugs remains for consideration. This must be arranged on sound principles and guided by careful observation and estimate of facts. In mitral disease, where we have had over-filling of the pulmonary veins, and consequently increased tension in the pulmonary artery and augmented loudness in the click of its valvules, disappearance of this accentuation of the second sound over the pulmonary artery indicates great failure on the part of the right ventricle. In the same way, feebleness or absence of aortic or mitral murmurs which had previously been present suggests failing ventricular contraction in the left side. Medicinal assistance is manifestly called for. Digitalis is, in Dr. Little's opinion, the most important of the cardiac stimulants and tonics. The rôle of digitalis is in organic diseases of the heart, and not even in all of these. The more frequent and the more irregular in force and rhythm is the heart, the more confidently can we prescribe digitalis. Dr. Little prefers the tincture ; and he thinks it better not to order it in a mixture, but simply to prescribe it either in its purity or (to facilitate

accuracy) mixed with an equal quantity of spirit of wine, and to direct the patient to take so many minims mixed with a tablespoonful of water just before it is swallowed. He believes the drug is injured by being kept for days in aqueous solution. It is better to give pretty frequent doses at first. When the pulse has fallen twenty or thirty beats, the frequency of the dose should be lessened; and when the heart is beating at the rate of seventy to the minute the daily administration of the drug should be stopped. When we have the heart beating at this rate, it is well to keep it so by giving twenty minims of the tincture every second or third night. The continuous administration of a dose at bed-time twice a week is often sufficient to keep the patient in comfort, and may safely be followed for three months. From his experience of the two valuable drugs, digitalis and strophanthus, Dr. Little concludes that digitalis is the more frequently useful. But we may often produce by strophanthus the effect which digitalis is powerless to accomplish in cases where the latter causes sickness, or where it fails to bring about an increase in the force of the cardiac contractions. Strophanthus is much more rapid in its action, and is not suitable for prolonged use. A most striking effect in rousing a failing heart followed the administration every fourth hour of three doses of tincture of strophanthus and a teaspoonful of brandy, in a small cup of hot black coffee. Caffein as a cardiac tonic ought to rank next to digitalis and strophanthus. It sometimes acts as a powerful diuretic, but it is liable to the objection that some patients are rendered by it distressingly nervous and wakeful. Bromide of potassium and other bromides may at times greatly relieve cardiac sufferers. Moderate doses may increase the regularity and force of the cardiac systole very distinctly.

With respect to alcohol as a remedy for supporting a failing heart, Dr. Little considers that it is as intemperately decried by some as it is unwisely recommended by others. The physician should carefully watch the effects of brandy and wine in all cases of chronic heart disease; for, while it often fails to support the heart, it is very likely to increase the patient's peril by adding hepatic engorgement to cardiac weakness. Strychnine helps at times the appetite of the sufferer from chronic cardiac disease, just as it enables ailing people with other maladies to take their food; but Dr. Little never could see that it had any power of giving force to the ventricular systole, and in some cases of irregular systole it seemed to make matters worse. The internal administration of atropine does not, in Dr. Little's opinion, give us any help in diseases of the heart. As a cardiac tonic, arsenic

is slow in action, and its effect must be referred to some effects on the molecular structure of the muscular fibre, or on the ganglia by which the innervation of the heart is maintained. A valuable agent for rapidly rousing a failing heart is local heat. Perhaps it helps by driving blood to the surface, thereby relieving distension of the cavities. In the form of a large, tight, hot linseed poultice it is of much value in relieving cardiac dyspnoea.

No question arises as to exercise when the cardiac patient is very ill, breathless, or dropsical: the quieter he keeps the better. Should he, however, readily get out of breath and have uneasy præcordial sensations on exertion, the physician should not, without consideration, counsel the avoidance of exercise. Cases with such symptoms associated with, as physical signs, feeble impulse and sounds, often have harm done to them by the well-meant warning to lessen exercise; whereas they may gain renewed strength and wind by a cautious return to their ordinary habits.

Speaking of cardiac dropsy, Dr. Little—after alluding to the fact that in the senile forms of heart disease dropsy is a late symptom and an ominous one—points out that we must select our remedial measures according as the defective driving power of the left ventricle or over-distension in the right cavities seems to be the chief agent in its causation. He has no hesitation in recommending the old-fashioned Guy's pill. But he thinks that sometimes one and sometimes another of the ingredients in the time-honoured Baillie's pill is unnecessary. As it is very seldom that in cases of cardiac dropsy the urine is non-albuminous, mercury, which is of such signal value in many cases of anasarca due to heart disease, has to be carefully avoided should independent renal trouble be also present. In some cases of old-standing heart disease, when digitalis has been taken for years, it is necessary to give this drug for many days, and in rather free doses, before there is an increased secretion of urine. The medicine which does most good in another class of patients is calomel—1 or 2 grains three times daily an hour before meals. The calomel increases the urinary flow, and keeps the bowels open. Should it fail to do so, 4 to 6 drachms of sulphate of magnesium dissolved in the smallest quantity of hot water will act as an efficient remedy. The abundant watery discharge from the bowels is followed by a great sense of relief to the breathlessness, if the patient refrains from fluid and merely sucks a piece of lemon, or at most takes only a small cup of warm tea. Recourse to puncturing the limbs, with all due antiseptic precautions, with the patient comfortably placed in a chair, and before the

tension of the skin has produced erythema, will have a beneficial result.

Lastly, when other remedies fail to afford relief from pain and cardiac anxiety, the use of direct anodynes has to be entertained. Of inestimable value in relieving the suffering and prolonging the life of many sufferers from cardiac disease, in cases where leeching is not indicated, is the hypodermic injection of morphine and atropine recommended by Dr. Clifford Allbutt. Much caution is required as regards the dose of the remedy, as a small dose may produce a great effect. In an adult it is safer that the first injection should not contain more than $\frac{1}{8}$ grain of sulphate of morphine and $\frac{1}{240}$ grain of sulphate of atropine. To maintain comfort, however, it is commonly required to increase the dose slightly each night for a week or ten days, after which it can be gradually reduced. In Dr. Little's opinion, chloral hydrate should be avoided in cardiac cases.

We will now see what a French physician has to say on the same subject.

M. Dieulafoy (*The Therapeutic Gazette*, p. 191, 1892) deals with the treatment of mitral insufficiency in an article published in the *Revue de Thérap. Gén. et Thermale*. He classifies cardiac medicaments into: (1) Cardiac tonics, such as strophanthus, strophanthin, and sparteine; (2) cardiac tonics and diuretics, as digitalis, digitalin, convallaria, and convallamarin; and (3) under the heading of pure diuretics he classes caffein, theobromin, the potassium salts, milk, and lactose. The drugs classed under (2), cardiac tonics and diuretics, are useful in those cases which suffer from dyspnœa, peripheral œdema, and general anasarca, with pleural, pericardial, or peritonitic effusions. Dieulafoy places milk at the head of these medicaments, as being one of the best diuretics; it may be administered hot or cold, uncooked or boiled. It is best given at regular intervals of every half-hour to an hour in small quantities, and its digestibility is much increased by the addition of soda-water or Vichy water. For the so-called diuretic treatment systematic medication is adopted by Dieulafoy. He gives sugar of milk in doses of from one to three ounces in water daily. He prescribes it thus: The lactose is dissolved in a small quantity of hot water, and is then largely diluted by some diuretic mineral water. A glass of milk and a glass of lactose solution are administered every one or two hours. The so-called diuretic wine of Trousseau is much preferred by Dieulafoy as a diuretic and cardiac tonic, and an admirable remedy in cases of asystole with dropsy. The following is the composition of the wine, slightly modified from the original:—

R Juniperi ...	...	...	...	...	...	3xij
Potassii acetatis...	...	...	...	...	...	3viiij
Digitalis ...	...	...	...	...	...	3ij
Scillae ...	...	...	...	...	...	3j
Vini albi...	...	...	...	...	...	Oviiij
Spiritûs rectificati	...	...	...	...	...	Oj. Misce.

A dessertspoonful of this very effective diuretic contains the proper dose of each of the constituents. When the subject of mitral disease is attacked by cardiac palpitation, pulmonary œdema, and cardiac failure, Dieulafoy considers that great benefit follows the application of counter-irritation to the region of the heart.

Diet in Disease of the Heart.—The principles of dieting in heart disease, whether compensated or with failure, are very complex, and from their own proper point of view have not received so much special attention this year as last. We have just seen, however, the references made by Professor Liebermeister, Dr. Little, and others, to the management of their cases in this respect, and we may here give a brief abstract of the views of another German authority on the feeding of these patients, and on the use of muscular exercise. Hirschfeld (*Berlin. Klin. Woch.*, March, 4; and *Brit. Med. Journal*, ii., p. 67, 1892), writing on the dietetic treatment of cardiac disease, says that in ordinary people, as in the corpulent, the heart muscle maintains, or even increases, its working power when the fat and the body weight are reduced by treatment. In diminished nutrition, the total amount of blood is lessened; whilst on the contrary, by the absorption of dissolved food stuffs into the circulation more fluid has to be driven by the heart, and there is an increased consumption of oxygen by the glands and other parts, so that more blood has to be sent to them. It follows that, with a lessened supply of food, the amount of work to be done by the heart is diminished, and at the same time its working power is not affected. When a valvular defect arises after rheumatism, and the reserve power of the heart is called upon before compensation is established, a limitation of diet, says Hirschfeld, is certainly correct. This opinion will commend itself to the reader who has had much experience of rheumatic endocarditis and its sequelæ. One of the essential conditions for the prevention of the re-awakening of the rheumatic process—in young subjects especially—is strict limitation of the diet, both in quantity and in richness. It is more difficult, according to the author, to decide upon the value of this limitation in disturbance of compensation. The undoubted value of the milk cure is, in his opinion, due to limited supply of food. Most of us will agree that,

taking patients as we find them, we shall probably be wise to recommend a spare diet in disease of the heart. The disposition is for all of us, lay and professional, to overfeed our invalids, and many of the worst sufferings and dangers of cardiac cases can be traced to flatulence from ill-advised dieting. Touching upon the subject of strengthening the heart by muscular activity, Hirschfeld points out that the latter should be increased but gradually, and that the Marienbad cure, as usually practised, requires of the heart too great exertion in too short a time. This over-exertion may predispose to dilatation.

Digitalis.—Of all cardiac drugs, the one which has received by far the largest amount of attention during the past twelve months is digitalis. Dr. George W. Balfour, of Edinburgh, in an article on the action of digitalis in cases of aortic regurgitation (*Brit. Med. Journal*, vol. i., p. 1182 ; and vol. ii., p. 153, 1892), says that a slow pulse not only gives fewer opportunities for regurgitation—though it is indubitably accompanied by a prolonged diastole—but the regurgitation is not thereby increased. The reflux is actually diminished by a slowing of the heart's action, and the balance of the circulation made more equable. Digitalis, therefore, in slowing the heart, is not hurtful in aortic regurgitation, but beneficial. This is a mere secondary or accidental effect of digitalis, which, however, pre-eminently possesses the properties belonging to what is called the digitalis group of remedies. It increases the elasticity of the muscular tissue, so that this extends and contracts more completely and perfectly ; and as all the blood passes more frequently through the heart than through any other muscle, this action is specially exerted upon it, and is manifested at a time when the other muscles are practically uninfluenced. We cannot over-estimate, Dr. Balfour remarks, the importance of such an action on a failing heart. In all cases of ruptured compensation in mitral incompetence, we are accustomed to rely upon it with the utmost confidence, and are rarely disappointed. Why should we have misgivings in aortic incompetence ? The heart is well fed in the early stages of aortic incompetence. Every part of it is flushed with blood which, from the increased size of the blood-wave and the position of the coronaries, must be at first, at all events, at an abnormally high pressure. The nutrition of the heart is specially well provided for. There are no symptoms, and treatment is not required. Should compensation be ruptured, from whatever cause, an aortic heart will be found as amenable to the beneficial influence of digitalis as any other failing heart. Larger doses are, however, required. But little influence is produced

by less than three times as much as would suffice for a mitral heart—a statement of cardinal importance, which the reader ought to weigh with great care and put to practical test. Should the pulse under this treatment become abnormally slow, which is not at all usual, and certainly not needful to secure benefit, we may rest assured that excessive regurgitation is not thus promoted; and though sudden death is not at all unlikely to happen in a badly compensated aortic heart, whether it is treated or not with digitalis, this drug is never to blame for this. The judicious use of digitalis is the most efficacious treatment in all cases of failing heart, whether this failure is accompanied by aortic or by mitral regurgitation. The tonic influence of digitalis on the heart in failure dependent on arterio-sclerosis alone, is hindered unless some drug is combined with it which unlocks the arterioles, and so prevents an increase of the blood pressure, already abnormally high.

Dr. Balfour returns to this subject, and points out that so long as the heart, and especially the left ventricle, retains its tone and vigour, there is neither breathlessness nor cardiac suffering, nor any need for treatment. This is true, however free the regurgitation may be—and there is a great variety in this—and whatever may be the pulse rate. Whenever the ventricle fails, symptoms at once set in which call for medical interference. In the treatment of such cases, rest and cardiac tonics are of the greatest use, and there is no tonic which has given so many proofs of its value as digitalis. The only objection urged against its use is that sometimes by it the pulse rate is reduced below the normal, and thus there is a longer period during which regurgitation may continue. The reply to this is, that to obtain all the benefit that digitalis can bestow, it is quite unnecessary to reduce the pulse rate; and that even when the pulse rate is accidentally reduced below the normal, the elasticity and vigour of the ventricle are by this time so much restored that there is no risk of its being overwhelmed by an excess of regurgitation, if, indeed, there ever is any such danger, which has never been proved.

Dr. Harrington Sainsbury (*Brit. Med. Journal*, p. 1330, vol. i., 1892) deals with the question raised by Dr. George W. Balfour, whether a prolonged diastole, *per se*, does or does not give greater opportunity for regurgitation in cases of aortic regurgitation treated by digitalis, and arrives at the conclusions:—(1) That the more slowly-acting heart will give greater opportunity for regurgitation; and (2) that the regurgitation must, *cæteris paribus*, be greater the greater the prolongation of the diastole.

Dr. Sainsbury adds that Dr. Balfour has himself propounded, in his work on "Diseases of the Heart," the best explanation of the probable value of digitalis in aortic regurgitation with failure of compensation, when he describes it as due to increase of the tonic or persistent contraction of the heart muscle. Asystole is threatened, not merely by the over-stretched condition of the atonic muscle fibre, but also by the large bulk of the blood which the dilated ventricle has to contract upon. By the tonic shortening of the muscle fibre, both of these adverse conditions are lessened. Dr. Sainsbury, nevertheless, maintains that the treatment of aortic regurgitation with failure of compensation, by means of large doses of digitalis, is not yet definitely established as a matter of fact.

Mr. E. R. Haines Cory, of Bournemouth (*Brit. Med. Journal*, Aug. 6, 1892), believes, in opposition to Dr. Balfour, that many of the unsatisfactory results in the treatment of aortic regurgitation by digitalis are due in a great measure to too large a dosage. In treating these cases now he rarely employs more than 2 or 3 minim doses of the tincture, in combination with 4 or 5 minims of solution of perchloride of iron. He has had excellent results, and in no case has he observed anything but benefit to the patient, though previously, after larger doses, epistaxis and faintness have occurred, so that at one time he had some misgivings as to the suitability of the drug in the treatment of this disease. Now, having ascertained the value of digitalis in small doses, he can confirm all that has been said in its favour. The fact is that digitalis is a much more powerful drug than is generally supposed, even one-minim doses producing an effect on the pulse rate. Mr. Cory believes the evil consequences ascribed to the drug, that is, in prolonging the diastole and increasing the regurgitation, to be merely theoretical, or, at any rate, much exaggerated, because by a judicious use of the drug increased vigour is imparted, not only to the cardiac muscle, but also to the muscular coat of the arteries: they are better supplied with blood, consequently tone and elasticity are increased; greater contractile power on the column of blood is induced; and, further, an increased facility to its onward flow, a more regular heart's action, and an improved nutrition are the result.

Dr. Barrs, of Leeds (*Brit. Med. Journal*, p. 542, March 12, 1892), has expressed his views on this subject, which are in support of Dr. Balfour's contention. Dr. Barrs considers that if digitalis is safe and beneficial in mitral disease it is equally so in aortic disease. He has come to the following conclusions:—First, the dangers in aortic disease arise from the same cause as

the dangers in mitral disease—failure of the compensation, that is, failure of the ventricular muscle to overcome the ever-increasing work put upon it. Second, the presence of symptoms in cardiac disease always means failure of compensation; the condition described as over-hypertrophy or over-compensation does not exist. Third, in all cases of valvular disease the chief desideratum in regard to the heart itself is the condition of the cardiac chambers in respect of dilatation and hypertrophy.

In this connection, **Dr. Solomon C. Smith** (*Brit. Med. Journal*, p. 51, July 2, 1892), in discussing the action of digitalis in aortic regurgitation, directs our attention to other important considerations in the problem. Accepting as true the recognised dogma that the slowing of the heart lengthens the diastole more in proportion than it lengthens the systole, and permits more regurgitation, there are other considerations which diminish the evil import of this fact. In aortic regurgitation the tension of the arterial system very rapidly diminishes during ventricular diastole; the great harm, so far as reflux goes, is therefore done at the first moment. Further, the lengthening takes place just at the moment when the left auricle wants time effectually to ensure the due onflow of the blood stream. The good effects of digitalis do not depend on its power of slowing the heart's beat nearly so much as on its influence in securing that each contraction is efficient, and that each cavity empties itself as it goes on. Asystole is the most serious of all the results of valvular disease, and when it begins to be established in aortic regurgitation it is apt to be progressive. It is over this state of imperfect systole, **Dr. Smith** maintains, that digitalis has so marked an influence.

Passing from the action and uses to the doses of digitalis, we find that during the past year the subject of the heroic employment of the drug has been revived in France. **M. Masius** (*Brit. Med. Journal, Supp.*, p. 8, July 9, 1892) has convinced himself, as the result of numerous experiments, that not only can digitalis be taken without any ill effect in doses (four grammes in the twenty-four hours) which are generally looked upon as "hyper-toxic," but that in these massive doses it obviates "surely and rapidly" the dangers arising from cardiac weakness and pyrexia. Infusion of digitalis used daily in doses of four grammes often produces good effects in forty-eight—sometimes within thirty-six—hours. The effects show themselves less quickly in febrile conditions than in diseases of the heart. The drug causes gastric disturbances more frequently in healthy persons than in those suffering from the affections in which its use is indicated. In a large number of cases of cardiac diseases **M. Masius** has for

nearly a year employed digitalis in the form and dosage just mentioned, so as to strengthen and regulate the action of the heart. If the heart muscle is too much altered in structure, or if its nervous apparatus is too exhausted to respond to stimulation, the drug has no effect. M. Masius asserts that the toxic dose of digitalis has been, in the case of a man, fixed too low, both in health and in disease.

A proposal of this striking, or even startling, kind was not likely to remain unquestioned. At a recent meeting of the Belgian Académie de Médecine, M. Miot severely criticised M. Masius's assertions. He pointed out that different samples of digitalis vary considerably in therapeutical activity. The parenchyma of the leaf is the most active part of the plant. The leaves should not be kept longer than twelve months, lest they lose much of their activity. As regards the infusion, M. Miot said it must not be forgotten that boiling water robs digitalis of a good deal of its activity; the water should, therefore, never be at a higher temperature than 70° C. In discussing M. Miot's communication, M. Moeller said that in two cases (one of mitral insufficiency and one of cardiac weakness without valvular lesion) digitalis given in ordinary doses did good at first, but seemed to lose its effect after a time without gastric intolerance being induced. After becoming acquainted with M. Masius's views, he tried digitalis in progressively increasing doses of two, three, and four grammes. The effect on the circulatory apparatus was *nil*, while the gastric intolerance was such that the treatment had to be discontinued.

How different may be the opinions of authorities on this subject (one which surely might be finally settled without great difficulty) will be manifest from a perusal of the following abstract of an article by M. Robin (*The Therapeutic Gazette*, p. 273, No. 4, 1892). This physician has arrived at the following conclusions respecting the doses and action of digitalis. Digitalis should be administered in small doses and not in pill form, because it may produce irritation of the stomach. It undoubtedly possesses a cumulative influence; and it is not safe to continue it for long periods at a time, as its active principles are but slowly eliminated. In large doses digitalis accelerates the pulse; in small doses the pulse-rate is reduced. It is the latter result which we desire in medicine; acceleration of the heart shows that dangerous quantities of the drug are being employed. The action of the drug persists for a long time after its administration. Arterial tension is increased by small doses, diminished by large ones. The excretion of nitrogenous materials diminishes under small

doses. M. Robin considers that in patients suffering from tachycardia with an extraordinary diminution of arterial tension it is wise to associate ergotin with the digitalis, which has a direct action upon the muscles in the walls of the arteries and veins. He prescribes the following:—Powdered digitalis 10 grains, macerated in 6 ounces of water. To this mixture are added 30 grains of ergotin, 90 grains of iodide of potassium, and 7 drachms of syrup. The whole quantity of medicine is taken in the course of six days. At the same time the patient is only allowed a skim-milk diet.

The next point respecting the employment of digitalis which has recently attracted attention is the form and mode in which it is to be exhibited. Dr. Mikhail K. Zenetz, writing on the subcutaneous administration of digitalis in cardiac disease (*West. Med. Reporter*, Aug. 18, 1892), finds as a result of his experiments that a hypodermic administration of digitalis should be preferred to an internal one in cases of cardiac affections with disturbed compensation. He conducted his observations on a series of patients, some of whom were suffering from advanced mitral stenosis, some from mitral insufficiency with stenosis, others from aortic regurgitation with stenosis, endocarditis, etc. It was found that even in cases in which the internal administration of infusion of digitalis had failed to restore broken cardiac compensation, a subcutaneous injection of much smaller doses of the remedy was followed by extremely beneficial effects. The author's explanation of the facts may be condensed thus: First, in cases of ruptured cardiac compensation—even where the failure is relatively inconsiderable—the gastro-intestinal mucous membrane is in a catarrhal and œdematous condition. Hence the absorption of digitalis (or any drug) given through the mouth is inevitably retarded and generally interfered with. Second, when the remedy is administered internally, the development of its physiological effects is retarded by the liver and the diseased heart itself. And third, when introduced under the skin, the remedy penetrates directly into the circulation, and is carried on straight to the heart.

In connection with the hypodermic administration of the drug, the nature and relations of its active principles are of much importance. M. Kiliani (*The Pharm. Journal and Trans.*, vol. li., p. 1061, 1892), in investigating a practically applicable method of preparing the really active principles of digitalis in a state of purity, has arrived at the following conclusions: (1) Besides digitonin and other active substances, the different kinds of commercial digitalin hitherto known generally contain two perfectly

amorphous glucosides. (2) The digitalein of Schmiedeberg is also a mixture; its action on the heart being probably due to the presence of a hitherto unseparated glucoside. (3) The digitalin of Schmiedeberg is, on the contrary, a distinctly individual substance, possessing in a marked degree the characteristic property of acting on the heart. The secondary cumulative effects of digitalis preparations is in all probability to be ascribed not to digitalin itself, but to those substances which are associated with it in the preparations of the drug that are generally used.

M. Fouquet, in the *Bulletin Gén. de Thérap.*, also publishes a study of the comparative value of the various commercial digitalins (*The Medical Chronicle*, vol. xvi., p. 245, 1892). He considers that crystallised digitalin, amorphous digitalin, and digitoxin all possess the same degree of activity, and that these only ought to be employed in medicine, the crystallised digitalin receiving the preference. The best method of administration is as one large dose of 1 milligramme ($\frac{1}{66}$ th of a grain) dissolved in a mixture of glycerine, rectified spirit, and distilled water. If necessary, half the dose may be given the next day, but it should then be discontinued on account of its cumulative action.

On the present occasion it is impossible not to be struck by the comparatively limited extent of the communications on *strophanthus*. This drug has necessarily lost the attraction of novelty. Fortunately this circumstance does not diminish its value. Unquestionably *strophanthus* has taken a permanent place in the materia medica; and for the present time, at any rate, it comes immediately after digitalis as the first of its succedanea. A thoroughly trustworthy preparation—of sufficient and uniform strength—is still a desideratum.

It is now several years since *sparteine* was recommended as a diuretic. This alkaloid, one of the active principles of the common broom, is soluble with difficulty, and accordingly the sulphate soon came into use. Rohde (*Berlin. Klin. Wochenschr.*, No. 32, 1892), who has a communication on the use of the drug, gives no higher daily dose than $\frac{3}{4}$ of a grain, and he finds the diuretic action always takes place. He has more frequently used *sparteine* along with digitalis, convallaria, or *strophanthus*, and found it act very well. This combination of small doses of different diuretics has in several cases been borne for many weeks with an unchanging favourable action. It was repeatedly observed that diuresis set in satisfactorily only when *sparteine* was added. The effect of the internal administration of about $\frac{1}{7}$ of a grain four or five times daily was unmistakable in the course of twenty-four hours; and especially noteworthy was the increase in tension of

the arterial system, on which a rise in the flow of urine followed. Rohde has never observed bradycardia similar to that produced by digitalis, but rather the resumption of a normal cardiac action where infrequency had been produced by debilitating conditions, such as great loss of albumen or in consequence of influenza. From about 90 beats the frequency went down, with improvement in the quality, to 70, and remained at that rate without further slowing. A particular advantage of sulphate of sparteine is its ready solubility in water, and indifferent behaviour to the subcutaneous tissues. A large series of injections under the skin had been made with a 2 per cent. sparteine solution, and never were any traces of irritation seen nor any complaints made about painful sensations. The subcutaneous injection shows the action upon the pulse in a few minutes. The excretion of albumen is less not only in appearance, that is from dilution, but also through a direct action of the remedy upon the primary urinary passages. Pure congestive albuminuria often completely disappears along with the œdema.

Carpaine appears to be the latest member of the digitalis group. Von Oefeli (*The Pharmaceutical Journal and Trans.*, p. 1, vol. lii., 1892) has tested therapeutically the action of this body, which occurs in the leaves of *carica papaya*, and has been recommended as a substitute for digitalis. Von Oefeli found that when employed hypodermically it produces neither irritation nor abscess. He regards carpaine as the only substitute for digitalis that can be so employed hypodermically. It appears to possess no advantage over digitalis substitutes when given internally.

A brief reference may here be made to the use of *erythrophlein*, a remedy still but little known, which appears to be of some value in the treatment of cardiac dyspnœa. Professor Germain Sée publishes a paper on this subject in *La Semaine Moderne*, abstracted in *The American Journal of the Med. Sci.* for Feb., 1892, p. 183. Erythrophlein is an active principle obtained from the bark of *Erythrophloeum guineense*, and is about as poisonous as amorphous digitalin. It acts both upon the heart and lungs, and belongs to the digitalis group of remedies. The author has recorded the results of its administration in nineteen cases, of which six were valvular or simple cardiac lesions. The medicinal dose is from $\frac{1}{40}$ to $\frac{1}{24}$ of a grain. This dose does not produce any digestive disturbance, and but slight modification of the condition of the heart, but the respiration is profoundly, constantly, and persistently changed. Dyspnœa, except of thermic origin, is diminished. There is a feeling of *bien-être*, an ease of respiration, which the patient himself remarks; the desire for air is satisfied, and he breathes more freely.

IV.—FUNCTIONAL DISORDERS OF THE HEART AND CIRCULATION ; GRAVES'S DISEASE.

The treatment of these morbid conditions is surrounded with the greatest possible difficulties ; and even more uncertain and indefinite must be the value of the recommendations on the subject that are met with in serial medical literature. In no class of cardiac cases does the individuality of the patient play so important a part. A large proportion of the instances of nervous disorders of the circulation that present themselves to the practitioner are aggravated and maintained, and many of them are originated, by central (psychical) disturbances, which—as far as treatment is concerned—are, as a rule, a purely personal affair. In many other patients diathesis or family proclivity is the step to the correct management of palpitation, attacks of spasms, and flushings or faints, as the case may be. Anæmia, again, may be the most important factor calling for removal ; in other instances a thorough reform of the habits of the sufferer, particularly as regards tobacco, alcohol, or tea, or it may be even indulgence in ill-advised muscular exertion. When we consider the multiple and complex ætiology of functional disorders of the circulation, we learn to accept with caution the casual recommendation of this drug or of that, and to rely more upon the faithful interpretation by ourselves of the nervous and personal indications in the different patients who seek our help. These remarks apply, in the opinion of the writer, with equal correctness to Graves's disease and its treatment. There has always been, and there still is, a strong disposition to direct our therapeutical measures to this symptom or to that symptom of this remarkable affection, particularly the goître and the disturbance of the heart, to the neglect of the mental condition, which, indeed, cannot be well appreciated in hospital practice, but requires a careful study of the individual patient in her personal and domestic relations. Nevertheless it will be profitable to review here very briefly a few of the papers that have appeared on this affection and on allied cardio-vascular neuroses during the past twelve months, the various recommendations being accepted with the necessary reserve.

The treatment of exophthalmic goître is discussed at some length in the *Revue de Thérapeutique Gén. et Thermale* and *The Therapeutic Gazette*, p. 408, vol. xvi., No. 6, 1892. Different measures are employed—first, for the phase in which the paroxysm is accompanied by marked dyspnœa and tachycardia ; and,

secondly, during the general course of the malady. For the first purpose, for combating the cardiac excitement, which is the principal factor of the paroxysm, full doses of digitalis leaves (as originally proposed by Trousseau), from $\frac{1}{2}$ to 1 grain, should be given every half-hour, for two or three hours, as long as the intensity of the symptoms lasts. The reader will not fail to observe how directly opposed this method is to the advice of some of the first authorities on Graves's disease in other countries, such as **Professor Nothnagel**, of Vienna, who regards digitalis as worse than useless in the circumstances ("Year-Book" for 1891, p. 29). The same remark applies to strophanthus, which has been recommended in America (*Medical Record*, xli., p. 492, 1892). Ice should be applied over the præcordial region. Recourse may be had to bleeding if great amelioration of the symptoms has not been evident after three hours.

In the treatment of the ordinary course of the disease the iodides and iodine have probably been the drugs most frequently recommended. Some authorities are ardent supporters of tincture of iodine internally. It may be necessary to use bromides to quiet the excitement of the nervous system and the cardiovascular system, or to employ valerian to control the nervous system, the dyspnœa, and the palpitation. In some cases belladonna is beneficial, and the neutral sulphate of atropine has been highly recommended by Grasset. For quieting the pulse M. Germain Sée highly recommends ten, twenty, or thirty-drop doses daily of tincture of veratrum viride. The question as to the usefulness of electricity in Graves's disease is unsettled.

Musehold (*Rev. de Laryngol.*, and *Brit. Med. Journal*, *Sup.*, p. 46, Sept. 17, 1892) records a case of Graves's disease accompanied by an enlargement of the posterior half of the right inferior turbinated bone. On his removing this portion by the galvano-caustic snare the headache at once disappeared, the palpitation gradually improved, and the heart was nearly normal some days afterwards. The goître, however, persisted, and was treated by mild continuous currents; two months later nearly all the trouble had disappeared. This case seems to indicate that Graves's disease is sometimes due to reflex causes, removal of which will also remove the trouble.

In presenting a digest of the recent pathology and treatment of Graves's disease, **Möbius** (*Boston Medical and Surgical Journal*, p. 115, Feb. 4, 1892) states that he has obtained most benefit from bromides. If this observation be correct, it is difficult to escape from the conclusion that the central nervous system must be, in part at least, the seat of the morbid process of which the

cardiac, ocular, and thyroid phenomena are manifestations. Yet with this as his personal experience, we find Möbius pronouncing in favour of what may be called the *local* pathogeny of Graves's disease. He reminds us that very pronounced good has followed removal of the thyroid: two cases have been operated upon successfully by Lemke, who considers exophthalmic goitre to belong to the surgical wards; and he regards the proximate cause of the disease as probably a morbidly increased activity of the thyroid gland. He adds that this hypothesis is supported by the similarity and points of contrast between exophthalmic goitre and other affections due to a diminished activity of the gland (cachexia strumipriva, myxœdema, and cretinism); by the fact that exophthalmic goitre not infrequently develops in old cases of goitre; and by the fact that operative treatment of the goitre sometimes has a material influence upon the disease.

Mr. Cardew (*Brit. Med. Journal*, p. 968, May 7, 1892) again recommends the continuous current according to the method which was described in detail in the "Year-Book" for 1892, p. 35. The positive electrode, 3 inches in diameter, he places on the nape of the neck, opposite the seventh cervical spine; the negative electrode, $1\frac{1}{2}$ inch in diameter, is to be moved up and down the side of the neck, along the anterior border of the sterno-mastoid. The electrodes should be well soaked in hot water. The applications should be made three times daily, and should last about six minutes. The immediate effect, as demonstrated by sphygmograms, is a diminution of the suddenness, violence, and rate of the heart-beat, with less feeling of tension in the eyes when exophthalmos was present. A stronger continuous current was found to cause an increase of the cardio-vascular excitement. A strong faradic current had a like effect; a weak faradic current produced no effect; with a moderate current, there was either no effect or the same as with the continuous current. This latter method is, therefore, adopted as the most effective, and also because it is self-applicable. If prolonged, the application causes an increase of excitement; Mr. Cardew therefore never uses it for more than six minutes at a time. At least three applications a day are needed, since the effects last but for a few hours. A small portable battery having an E.M.F. of about 6 volts, and a water voltameter to test the battery, are all that are required. It is difficult to order the treatment, so to speak, by "rule of thumb," owing to the great variation in the resistance of the human body; but for all practical purposes this might be estimated at about 2,000 to 3,000 ohms, so that a battery having an E.M.F. of about 6 volts would

be sufficient to produce a current of about 2 to 3 milliampères. The one he recommends for use costs £1; it could be made for about 9s. The patient must be encouraged to persevere, and not be discouraged by temporary relapses. Mr. Cardew agrees that moral and hygienic measures are of course also needed. Cases may be divided under three categories: those which recover unaided, those which recover with drugs or electricity, and those which do not recover. Many of his cases were of long standing, and had previously been in the hands of good physicians.

In the *Gazette des Hôpitaux* Dr. Vigoroux recommends negative faradisation of the carotids, the goître, and the eyes, and positive faradisation of the præcordial region. It is stated that after fifteen years of this plan of treatment at the Salpêtrière, carried out in about a hundred cases, improvement is almost always prompt; and if the treatment is persisted in for a sufficient length of time, complete disappearance of the symptoms takes place.

S. A. Lentovsky (*Meditzinskia Pribavleniia K' Morskomoü Sbornikü*, No. 4, 1892, and *Brit. Med. Journal, Suppl.*, July 23, 1892) relates a case of typical Graves's disease in a girl, aged 16, cured by the internal use of iodide of potassium (3ij to 3vj aquæ) in tablespoonful doses, with the addition to each of from 10 to 20m of tinctura ferri acetici æthereæ. Simultaneously inunctions of an iodine ointment were made, and a liberal diet was ordered. Considerable improvement was observable in two months; while two months later the goître, the exophthalmos, the acceleration of the pulse, etc., disappeared altogether. No relapse had occurred up to the time of the report, four years afterwards.

With respect to the individual symptoms, a curious observation is reported by Dr. T. Churton (*The Lancet*, p. 1175, May 28, 1892). In a case of Graves's disease with extreme exophthalmos, congestion of both conjunctivæ, and ulceration of the left cornea, he obtained satisfactory results by administering $\frac{1}{2}$ grain of exalgin every quarter of an hour for three times. Pain was relieved, and the conjunctival congestion quickly disappeared. The *rationale* of this method is obscure. Little, if any, improvement was effected of the original disease.

For the paroxysms of oppression and palpitation occurring in exophthalmic goître Dr. F. Déléage (*The Amer. Practitioner and News*, p. 122, vol. xiv., No. 4, 1892) recommends the application of ice to the præcordial region, and administers digitalis, $2\frac{1}{2}$ grains of the dried leaves, every half-hour for two to three hours. If relief is not obtained before the expiration of three hours,

phlebotomy, in his opinion, is indicated. Dieulafoy's treatment with ipecacuanha, digitalis, and opium, seems to yield very satisfactory results. Half a grain of powdered ipecacuan, one-third of a grain of powdered leaves of digitalis, and one-sixth of a grain of extract of opium are contained in each pill, of which the daily dosage is four to six. The improvement is usually rapid, the only occasional inconvenience being a diarrhœa.

In connection with functional disorders of the heart and circulation we may refer to the employment of a new drug called coronilla. Poulet (*The Therapeutic Gazette*, p. 179, March 15, 1892) records his experience of this new cardiac medicament, which contains an active principle, a glucoside called coronillin. In the treatment of paroxysmal tachycardia he has obtained excellent results from the use of a tincture of the plant. Pain was overcome, as were also other grave symptoms that accompany this condition, particularly in those cases which depend on disease of the aortic or mitral valves. It further produced a favourable result in cases of cardiac asthma, whilst exercising at the same time a stimulating and tonic effect upon the digestive tract. Poulet considers coronilla of great advantage in those cardiac troubles which arise from sexual excesses, or from the abuse of tobacco, coffee, or alcohol.

DISEASES OF THE LUNGS AND ORGANS OF RESPIRATION.

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THE various modes of treatment of diseases of the lungs and organs of respiration to which attention has been called during the year will be discussed under the following heads :—

I. Asthma and Bronchitis.

II. Pneumonia.

III. Pulmonary Tuberculosis :—

(a) Hygienic and Constitutional Treatment.

(b) Treatment by Special Remedies.

(c) Treatment of

(1) Night-sweats.

(2) Hæmoptysis.

IV. Diseases of the Pleura.

I.—ASTHMA AND BRONCHITIS.

The *Therapeutic Gazette* (Feb. 15, 1892) contains an article on the treatment of asthma, with special reference to the use of *euphorbia pilulifera*. It has been proved that the minute bronchial tubes contain as many muscular fibres as the larger ones, and that hence the possibility of their contraction is assured. **Stoerk** and other observers have found that hyperæmia of the bronchial tubes is always present when asthmatic attacks occur ; and others have demonstrated that the muscles in the walls of the tubes and of the blood-vessels of the mucous membrane are governed by the anterior and posterior pulmonary plexuses—which are made up of branches of the pneumogastrics, recurrent laryngeals, spinal nerves, and ganglia from the sympathetic nervous system. Branches from these plexuses form a network

about the bronchioles, and contain ganglia. Reflex activity can therefore play an important part in the causation of asthma; and those remedies are nearly always indicated which decrease reflex activity and depress the vagus nerve or its terminal branches. Hence belladonna, which depresses the vagus, has long been a favourite; and lobelia acts in a similar way. Within the last two years another remedy has been introduced, the *euphorbia pilulifera*, the mode of action of which is almost unknown. The following combination has been found very useful, given in a compressed pill or a capsule:—

R	Ext. euphorbiæ piluliferæ	...	...	m. iii
	Nitroglycerini	...	...	gr. $\frac{1}{200}$
	Sodii iodidi	...	...	gr. ii
	Potassii bromidi	...	...	gr. ii
	Tr. lobeliæ	...	...	m. ii

M.

Sig.—To make one dose, which may be doubled or tripled, and taken three times a day.

This prescription contains the new anti-asthmatic *euphorbia*, together with nitroglycerine, which is a powerful depressor of the vagus, and tends at the same time to relax the spasm of the muscular fibres. The lobelia has a similar effect on the vagus, and the iodide of sodium exercises the peculiar effect which the iodides possess in altering abnormal and promoting normal secretion in the respiratory passages. And finally, the bromide tends to lessen reflex activity, and so to decrease spasm, in addition to quieting nervousness and relieving insomnia. In obstinate cases the *euphorbia* may be given in separate doses to the extent of half to one drachm in addition to what is contained in the above prescription.

The association of asthma with *nasal disease* is sometimes overlooked. Dr. W. Jones (*Therap. Gaz.*, July, 1892) brings forward a series of twenty-three cases of asthma, in some of which the removal of exostoses from the septum, of greatly hypertrophied middle turbinated bones, and of nasal polypi, resulted in cure. In others the disease was associated with atrophic rhinitis, and areas of hyperæmia on the middle turbinated bones, and in these cauterisation with chromic acid was successful. In two instances where atrophic rhinitis existed alone, cauterisation only increased the asthma.

Dr. H. Drinkwater (*Brit. Med. Journal*, 1892, i. 653) also records two interesting cases in which most pronounced attacks of spasmodic asthma were caused by the pressure of nasal polypi, on the removal of which the tendency to asthma altogether disappeared.

In cases of chronic bronchitis, the *Therapeutic Gazette* (p. 719, 1891) says that banana-juice has been highly praised when the breathing is difficult and the expectoration scanty. The bananas are cut up into small pieces, and put, with plenty of sugar, into a closed glass jar; this is placed in cold water, which is gradually made to boil; and when the boiling-point is reached the process is complete. Of the syrup so made the proper dose is a tea-spoonful every hour.

II.—PNEUMONIA.

Dr. Boardman Reed (*Therap. Gaz.*, 1892, pp. 166 and 228) contributes an elaborate statistical paper on the results of the treatment of pneumonia under different methods.

In Laennec's time, at the beginning of the century, the treatment of the disease was most heroic—by means of repeated bleedings, and by tartar emetic, purgatives, and blisters. Laennec's own mortality is given at 9·6 per cent., as compared with a mortality in other men's hands of 12·5 to 16·6 per cent.

Taking the period prior to 1856 as that of heroic treatment, and that since as corresponding with milder measures, the results are as follows :—

Cases of pneumonia treated before and during 1856 :—

From army reports	{ Total number 11,128.
	{ Percentage of deaths 7·3.
Excluding army reports	{ Total number 6,150.
	{ Percentage of deaths 15·3.

This table does not include Hartshorne's important statistics of 11,627 cases treated "prior to 1858," of which 2,751 were bled (some receiving tartar emetic also), with a death-rate of 9 per cent., and 8,424 were treated without bleeding, with a mortality of 10 per cent. The same writer collects from the *United States Army Records* 1,416 cases with a mortality of 8·9 per cent. during the bleeding epoch, and 657 cases with a mortality of 14·7 in the less heroic period that followed. Further, Wunderlich treated 76 cases without bleeding, with a mortality of 6·38 per cent.

Ordinary hospital statistics in pneumonia are somewhat unsatisfactory, chiefly because the cases usually come under treatment after the "golden time," the first forty-eight hours, has passed. And in America a special disturbing element is the high death-rate of the disease in the negro race.

Taking the average non-military hospital mortality during the

first fifty-six years of the century as 15·3 per cent., the following are examples of the percentage of death-rate in civil hospitals since 1856 :—

	Per cent.
Pennsylvania Hospital, average of several periods of three years	36
New York Hospital, 1877 to 1885	48
Massachusetts Hospital, 1880 to 1889	28
Montreal Hospital, 1873 to 1883	23·7
Montreal Hospital, 1883 to 1887	20·3
Bellevue Hospital, New York, during four years, under an expectant, sustaining, and stimulating plan	34·1
New York Hospital, 1877 to 1885, under similar treatment, stimulants being freely given	48
Massachusetts General Hospital :—	
Before 1860, heroic treatment	40
Since 1860, sustaining treatment	41

Military statistics are the most valuable, as all cases are included, the patients are usually young and healthy men, and the conditions of treatment are similar. In 11,128 cases of pneumonia in the United States and British armies up to 1856, the mortality was only 7·3 per cent., while during the War of the American Rebellion—1861 to 1865—in 61,202 cases (exclusive of the coloured troops) there was a death-rate of 24 per cent., and the Confederate rate was 33·5 per cent. By the statistics of the Prussian army from 1868 to 1878, excluding the years of war (1870 and 1871), in 42,467 cases the mortality was only 3·6 per cent. Up to 1856 the treatment was heroic; the period of the American Rebellion was transitional, with a predominance of expectant measures, usually summed up as “stimulants, expectorants, Dover’s powders, and poultices;” while in the third period, with the astonishingly low mortality of 3·6 per cent., plenty of cool fresh air was admitted, high temperature was controlled by free and persistent wet packing, twelve to sixteen wet packs being applied to the seat of pain if this was severe and the engorgement of the lung was considerable, and the internal remedies consisted of either tartar emetic or veratrum viride; in the older cases, digitalis; and in threatened heart-failure, nux vomica.

A long discussion of the various methods of treatment adopted by different authorities follows, and the paper is summed up in the following conclusions :—

1. That water locally applied, either by wet packs, or in the form of baths after the Brand method, is the most efficient single remedy for acute pneumonia.

2. That either veratrum viride or aconite can accomplish more

than any other single drug in the first stage, and that the same is true of digitalis in the second.

3. That venesection, though a most efficient means of treating sthenic forms of pneumonia, and, judiciously employed, considerably more successful than any merely expectant method, is no longer an indispensable resource in managing the disease, since other remedies have been found to accomplish the same results more surely and more pleasantly.

Dr. S. H. Dessau (*Therap. Gaz.*, 1891, p. 752) reminds us that in pneumonia the condition of the right heart is of even more importance than that of the left, and that therefore the character of the pulmonary sounds is a better guide to the conditions present than is that of the pulse. The difficulty exists in the pulmonary circulation, not in the general; and hence the tendency to acute dilatation of the right ventricle. The treatment should therefore be directed to relieving the right heart by increasing the capacity of the systemic arterial system, and by diminishing the pulse rate so as to lessen the amount of blood forced by the left heart upon the already over-distended right side. The cutaneous capillaries may be dilated by means of spirits of nitrous ether, Dover's powder, or spirits of mindererus, and also by the warm bath or hot sponging, with friction. Small doses of calomel will also beneficially stimulate the liver. The heart's action may be reduced by aconite or veratrum; digitalis should be avoided, as it causes contraction of the arterioles of the systemic circulation, and increases the force of the heart's action.

The use of digitalis in pneumonia is also strongly condemned by Löwenthal (*Centralbl. f. d. gesam. Ther.*, Nov., 1891), who reports twelve cases treated with large doses of the drug, all of which recovered. From 3 to 4 grammes of infusion of fresh leaves were given daily. The general condition did not improve, but debility increased; and in no case could even a temporary remission of symptoms be observed. On the contrary, portions of lung, unaffected before treatment, became implicated, and went through the usual stages—in one case after 8 grammes of the infusion had been taken in two days, and in another after 12 grammes taken in three days. The temperature was only very slightly reduced after some time. In all the cases a subnormal temperature (35° C.) existed for several days during convalescence. The pulse rate, but slightly changed before the crisis, after that usually became distinctly less, and sank in some cases to 35 per minute; and irregularity was also observed. These conditions persisted for two or three weeks, and only gradually returned to the normal. Digitalis did not lessen the respiratory rate; on

the contrary, when the pulse began to get slower, respiration became enormously quick, even 60 per minute. This could not be referred to the morbid process, since it persisted for one or two weeks after the latter had ceased. Resolution was not delayed, though expectoration was sometimes difficult on account of weakness. Extreme exhaustion nearly always existed after resolution was completed, and the patients lay apathetic for a long time. The observations gave evidence of a distinct and somewhat persistent state of collapse, shown by impaired cardiac action, disturbances of circulation, and extreme muscular prostration. This is in marked contrast to the experience of Petresco ("Year-Book of Treatment" for 1890, p. 24, § 10).

Several observers have adopted Fochier's method of artificially producing subcutaneous abscesses in bad cases of pneumonia. **Lépine** (*Sem. Méd.*, Feb. 27, 1892) made use of it in a patient in whom grey hepatisation was impending, or had commenced. Expectoration had become purulent, coarse râles were present, and although the temperature had fallen, there was no true resolution or defervescence. On the twelfth day one c.c. of essence of turpentine was injected subcutaneously into each of the four limbs. The temperature rose slightly, and remained up till the resulting abscesses were opened on the eighteenth day of the disease. The temperature then quickly became normal, the lung cleared up, and the patient recovered.

Dieulafoy (*ibid.*, March 30, 1892) reports another case of double pneumonia after influenza, which appeared in a desperate condition, when one gramme of essence of turpentine was injected into each of the four limbs. Phlegmonous abscesses quickly formed, which were opened. The day after the injections the fever began to subside and the general condition and physical signs to improve, and complete recovery followed.

Bard (*Lyon. Méd.*, April 17, 1892) gives another instance in which similar treatment was followed by resolution and recovery. When the injection was given ($\frac{3}{4}$ c.c. in the arm), asthenic pneumonia had existed for nine days without sign of resolution. The same evening the temperature fell, rising again the next morning as a result of the inflammation following the injection, and then gradually became normal. The general condition showed marked improvement as soon as suppuration began; resolution followed, and the patient recovered.

Fochier's theory is that these artificial abscesses (called by him "*abcès de fixation*") check the inflammatory action in the organ attacked by "fixing" it elsewhere; but **Chantemesse** and **Gingeot** consider that the production of the abscesses sets up leucocytosis,

and thus brings up reinforcements of phagocytes to the assistance of the original defenders.

A perusal of the reports of cases in which this method has been adopted does not make it clear that recovery was in any way due to it, and in fact raises the suspicion that convalescence was delayed by the abscesses produced. In pneumonia, where the advent of the crisis may in a few hours bring the patient out of grave danger into comparative comfort and safety, it is most important not to give undue credit to measures that happen to be adopted about the time when the critical phenomena may occur spontaneously.

The use of *oxygen* in pneumonia has excited much interest, since its advocacy by **Drs. Lauder Brunton** and **Prickett** (*Brit. Med. Journal*, Jan. 23, 1892). In the *Bristol Medico-Chirurgical Journal* for March, 1892, I have given a brief summary of the medical history of this gas. Soon after the discovery of oxygen by **Priestley**, **Dr. Beddoes** made observations upon its therapeutic value in his Pneumatic Institution in the Clifton Hotwells; and it has since been well spoken of by various observers in the treatment of membranous croup, acute parenchymatous nephritis, chronic Bright's disease, and uræmia, and in asthma, chronic bronchitis, catarrhal bronchitis, and pneumonia.

Drs. Lauder Brunton and **Prickett** (*loc. cit.*) administered oxygen to a patient with double pneumonia, who when seen was "completely unconscious and apparently moribund, his face livid, the skin cold and covered with a clammy sweat, and loud mucous rattles accompanied every respiration." Fifteen ounces of blood were withdrawn by venesection, two doses of $\frac{1}{40}$ grain of strychnine were injected subcutaneously with an interval of twenty minutes, and oxygen gas was then administered. In two hours "an extraordinary transformation had taken place; the patient was perfectly conscious, his colour was quite healthy, and he expressed himself as feeling comfortable and well." The inhalation was then discontinued for some hours, when the pulse and respiration again began to fail, and in spite of the continued administration of oxygen the patient died.

This communication has elicited the experience of other observers. **Mr. T. A. O. Langston** (*Brit. Med. Journal*, Jan. 30, 1892) gave the gas to a patient with acute bronchitis following influenza, who was completely insensible, with intense cyanosis, irregular respiration, and a very feeble failing pulse. In two hours the cyanosis was gone, but the patient was still insensible; in three hours she was perfectly conscious. When the inhalations were stopped for some hours, insensibility returned, to be again

removed when they were renewed. A few hours later the supply of the gas ran out, and the patient died before more could be obtained. The effect of the oxygen was "simply marvellous," bringing the patient temporarily "out of the jaws of death to life." Dr. W. Carter (*ibid.*, Jan. 30, 1892) has for some years used the gas in respiratory troubles. He quotes an instance in which it undoubtedly saved the life of a woman with bronchitis and a dilated right ventricle, who was blue and all but pulseless, and evidently about to die. The good effect of the oxygen was soon seen, and next morning the patient was quite comfortable; and uninterrupted recovery followed. In Bright's disease, with threatened uræmia, Dr. Carter follows Jaccoud's plan of administering the gas mixed with air from a portable gasometer, which is wheeled to the patient's bedside. He points out that oxygen is excessively stimulating, and if inhaled suddenly in large amount may cause a tetanic condition of muscle; and also that its sudden expansion on its escape from the cylinder chills the air and the patient, and may cause irritation and cough. He uses an ivory (not glass) mouthpiece, through which the gas flows from the cylinder in a gentle stream that can be felt on the back of the hand.

Dr. J. C. Thorowgood (*ibid.*) quotes a case of advanced phthisis in which oxygen relieved oppression and dyspnœa, and caused the return of colour to the lips. The cylinder lay under the bed, and the patient now and again took an inhalation by means of a pipe with a stop-cock. Dr. Aubrey Blakiston (*ibid.*, Feb. 13, 1892) gave the gas in three cases of pneumonia and one of acute bronchitis. All were unusually severe, and all recovered, and he believes that in two of these life was saved by its use. In two out of three cases of bronchial asthma the result was also very satisfactory. One patient during convalescence from acute illness said that after massage and the inhalation of oxygen he "felt as if he had been a six-mile walk and breathed sea-air." Dr. A. W. Gilchrist (*ibid.*, Feb. 6, 1892) cites a case of influenza with lung complications, in which death was imminent from asphyxia and cardiac failure. Some improvement followed the injection of two drachms (!) of liquor strychniæ, repeated after two hours; but as collapse again threatened, strychnine was resumed "in larger doses," and oxygen was administered, with the result that the colour was improved and the patient became more sensible and expressed herself as feeling relieved. On the fourth night she again became insensible, with cold extremities and dusky clammy surface. Fourteen leeches were applied, and oxygen was again inhaled; cyanosis was markedly relieved, the pulse improved, and complete consciousness

returned. After some hours, however, death occurred, although the gas was still given "at intervals." **Dr. J. L. Porteous**, of New York (*ibid.*, Feb. 20, 1892), has frequently used a mixture of two parts of oxygen and one of nitrogen monoxide in pneumonia, phthisis, asthma, and uræmia. In the cyanosis of pneumonia wonderful effects were produced. In one case a minute's inhalation reduced the respirations from fifty to twenty-five per minute, and gave great relief. He advocates its use in the *early stages* of pneumonia; inhaled for a minute or two every half-hour until the patient is relieved, and then every three or four hours, it lessens the frequency of the respiration, slows the heart's action, subdues restlessness, and induces sleep. In asthma its administration two or three times a day gives excellent results. **Mr. R. W. Bateman** (*Lancet*, 1892, ii. 308) records a case of pneumonia following influenza, in which oxygen was administered with great benefit. The right apex and the left base were affected, and the patient was in a very critical condition when the gas was first given. After five minutes' inhalation, cyanosis disappeared; and after an administration when the patient was at her worst, she said that it made her feel quite hungry. The gas was also given with advantage during convalescence, which was slow. **Dr. J. T. Maughan** (*Brit. Med. Journal*, 1892, i. 551) also reports a case of pneumonia following influenza, in which the inhalation of oxygen to all appearances saved the patient's life. The pulse was 130, the respirations were 65, and the patient was apparently moribund. The gas was passed direct into the nostril. Within two minutes the colour changed from a dusky purple to a rosy hue; the pulse, previously imperceptible at the wrist, reappeared, and was fairly good. In about four minutes the patient woke, and said, "Where have I been? I feel quite well now." Next morning cyanosis and dyspnœa had returned as severely as ever; and again the oxygen produced the happiest results. Recovery followed from that time. Another case of pneumonia following influenza is related by **Dr. W. Collier** and **Mr. H. P. Symonds** (*Lancet*, 1892, i. 464), in which the good effect of the administration of oxygen was most marked. The patient was a lady aged fifty-seven. The treatment was commenced on the seventh day, the gas being given for short periods, with the result of slightly diminishing cyanosis and improving the pulse. Next day the patient was worse; the pulse was 120, the respirations were 50, and cyanosis was much more marked, and she was lying in a drowsy unconscious state, sleepless on account of the dyspnœa. It was now decided to push the oxygen, and to inject citrate of caffein hypodermically. A good stream of gas was turned on through

the mouthpiece. After twenty minutes the respiration had fallen from 50 to 40, the pulse from 120 to 106, its character being improved, the lips were ruddy instead of purple, and the patient was dozing. The gas was now given in smaller quantity through the day. In the early morning the supply failed, and the patient became unconscious and much cyanosed, the pulse-rate being 120 and the respirations 45. Improvement at once followed when the inhalations were resumed; and by the evening the crisis had commenced, and the patient from that time made a good recovery. The conclusion drawn from the case is that for oxygen to be of value in such conditions it must be administered more or less continuously.

Dr. W. H. Allen (*Brit. Med. Journal*, 1892, i. 501) records two cases in which the same remedy produced wonderful temporary benefit, removing a condition of collapse and cyanosis; but in neither was a fatal result averted. It may be noted that the administration of the gas was intermittent, and not continuous.

Dr. W. P. Morgan (*ibid.*) administered oxygen in pneumonia occurring in a patient subject to chronic bronchitis and asthma and possessing a dilated heart with intermittent pulse. The patient was exhausted, gasping for breath, with the face of a dusky hue and the finger-nails becoming purple. The effect of the inhalation of the gas was "marvellous"; the purplish colour disappeared, and strength very much improved. The treatment was continued for five days, combined with hypodermic injection of strychnine; and in spite of the apparently hopeless nature of the case, recovery ultimately occurred.

My own experience agrees in the main with that of the foregoing observers. In the *British Medical Journal* (Feb. 6, 1892), I have recorded the case of a patient, aged 66, the subject of marked emphysema and cardiac dilatation, who was attacked with extensive bronchitis and broncho-pneumonia. When the inhalation of oxygen was commenced, the pulse was rapidly failing, the surface was very dusky, and the end was fast approaching. The immediate effect was most striking; the pulse improved wonderfully in tone, and the cyanosis completely disappeared. When the inhalation had ceased for a few minutes, however, the pulse again began to fail and the cyanosis to return, to be again removed by the fresh administration of the gas. In about ten hours' time the effect of the inhalations began to be less marked, and the patient gradually sank and died. The influence of the oxygen in temporarily removing cyanosis and stimulating the failing heart was extraordinary, and altogether beyond doubt; and although a fatal issue was not averted, yet it was manifest that life

had been prolonged for some hours. My further experience of this remedy in hospital practice has as yet been somewhat disappointing; some amount of temporary benefit being obtained, without a lasting good effect. All the observers, however, agree in describing the wonderful influence of oxygen in removing cyanosis and stimulating the heart; and the frequently unfavourable nature of the ultimate result may be accounted for by the evident fact that the gas has often been given when the patient has been almost *in articulo mortis*. The theory of its administration is sound; increased power of oxidation in the inhaled atmosphere should compensate for diminished oxidising surface; and it may fairly be hoped that a more extended experience may prove oxygen to be a valuable therapeutic agent. From our present knowledge, it may be said that when oxygen is used in acute respiratory troubles, its administration should not be too long deferred, and that in extreme cases it should be given continuously and persistently.

Surgeon-Captain J. S. Edye (*Brit. Med. Journal*, 1892, i. 762) reports a case in which *strychnine* appeared to be of the greatest value in the pneumonic crisis. A girl two years and eight months old was attacked with pneumonia of the whole of the left lung, and bronchitis in the right. The temperature ranged between 102° and 103·5° F., and a fatal result appeared imminent. On the tenth day of the disease the temperature was 101·8°, and there had been a little diarrhoea and sweating; and the child quickly became cyanotic, cold, and pulseless, drawing every now and then a shallow breath. A minim and a half of liquor strychniæ were injected immediately, and the breathing improved, the pulse returned, and cyanosis diminished. Before brandy could be given the breathing again stopped, though the pulse was to be felt. Two minims more were immediately injected; the child drew a deep breath, and opened its mouth wide, and remained thus for several seconds; then the mouth closed, breathing became regular and easy, and brandy was swallowed. Next day the temperature was normal; and four minims of the solution of strychnine were given three times in the day. At night lividity tended to recur, but when four drops of the solution were given the lividity at once passed off. The child ultimately recovered.

III.—PULMONARY TUBERCULOSIS.

There is, as usual, a preponderating amount of material in this section, although no engrossing interest attaches to the literature of tuberculosis for the past year such as was imparted to it during the previous twelve months by the introduction of tuberculin.

(a) Hygienic and constitutional treatment of pulmonary tuberculosis.

A question of great importance in connection with this subject is the following:—What evidence is there to justify the hope that marked amelioration or even complete recovery may occur in tuberculosis apart from specific treatment? In an interesting work on “Arrested Pulmonary Tuberculosis” (Churchill, 1892), **Dr. J. K. Fowler** produces a large amount of pathological evidence in proof of the frequent existence of obsolete pulmonary tubercle in patients dying from other causes, and gives the following statistics:—At the Middlesex Hospital, from 1879 to 1886, obsolete tubercle was found in the lungs in 9 per cent. of patients dying from causes other than tuberculosis; at the Institute of Pathological Anatomy of Vienna, from 1869 to 1879, in 4 per cent.; at the Middlesex Hospital in 1890-1, in 9·4 per cent. **Dr. Coates** concludes from post-mortem observation that 23 per cent. of persons who do not die of tuberculosis have at some time been affected with some form of internal tuberculosis; **Dr. Harris** makes the percentage at the Manchester Infirmary as high as 38, but he includes certain cases of death from “phthisis.” **Professor Brouardel** states that he has found evidence of cured tubercle in the apex of the lung in 60 per cent. of persons over 30 years old who have died from violence. **Dr. Fowler** reconciles these striking statistics with our clinical experience of phthisis by pointing out that these lesions would probably not be recognised clinically as tubercular, and would include such conditions as “catarrh” and “congestion” of the apex, and “pneumonia of the apex,” nearly all of which are really tubercular, but are not considered to be so if recovery takes place; and also cases of hæmoptysis, in which the blood is said not to come from the lungs because no physical signs of disease can be recognised. What it was that turned the scale in favour of the patient, the author is not in a position to determine—possibly, he suggests, some intercurrent acute disease; or an increase of vitality which prevented extension of the morbid process and shut off its products from the organism. In considering the probability of arrest in any given case, many factors have to be considered. It may be hoped for in cases of fibroid tuberculosis with a larger area of infiltration than in any other form of the disease. If a cavity can be recognised, the probability is that, should arrest occur, the tubercular process will extend at some later period, and that death will result from tuberculosis; but to this rule there are many exceptions. The relation between the presence of bacilli in the sputum and arrest of the disease is important. So long as they

are present, the lesion has neither undergone fibrosis nor become encapsuled. But in the author's opinion their presence does not necessarily imply that the lesion is extending, and it is certainly in his experience compatible with the complete absence of symptoms and signs and the enjoyment of what is often described as perfect health.

An interesting discussion on the conditions of cure in consumption took place at the Medical Society of London (*Brit. Med. Journal*, 1892, i. 106, and *Lancet*, 1891, ii. 1102). **Dr. Burney Yeo** referred to the fact that, while few physicians could point to cases of undoubted cure of tuberculosis, yet pathologists could exhibit many specimens of obsolescent tubercle in the lungs; and he would call the latter cases of cured pulmonary tuberculosis rather than cured phthisis—that is, in them the general health was never seriously affected, and physical signs were not produced. The conditions of cure in phthisis were the following:—1. Early recognition of the disease, especially in its first or germinating stage, the period from the advent of the first bacillus up to the development of the adult miliary granulation. There were no physical signs in this stage, which was characterised by anæmia, slight cough, and quickened respiration; and in the absence of destruction of lung tissue there were no bacilli. For diagnosis it was necessary to look for localised slight anomalies of respiration, accompanied by disturbance of the general health. 2. The early occurrence of hæmoptysis was favourable to cure, because it attracted attention to the pulmonary condition. 3. A natural tendency to the fibrous rather than the caseous metamorphosis of the exuded products. 4. Absence of excessive tissue-sensitiveness or irritability. Patients with unstable vascular systems, who flushed readily, offered but feeble resistance to bacillary invasion, and in them the constitutional reaction was very marked. 5. The absence of hereditary taint. 6. The introduction of a small number of bacilli, or of bacilli of low energy or of mitigated virulence. 7. The channel by which the bacilli entered was of importance; entrance by the respired air was more favourable than through the blood or lymph vessels. 8. A sound organic state of the patient in other respects.—A few therapeutic indications were worthy of note. Food should be suitable, and in such quantities as to ensure digestion and assimilation. In France excessive feeding had been largely carried out. A case was quoted in which cure was brought about by a process like the Weir-Mitchell treatment. The patient should live in the open country or by the sea, in the sunshine, or in a dry, aseptic, unirritating air, which need not necessarily be cold. Most of the sanatoria in

the Swiss Alps were very imperfect ideals for the treatment of the general run of cases, for their atmosphere was not always unirritating, and attacks of acute bronchitis, pneumonia, and pleurisy were common; he had seen better results produced by South Africa or South California, while the Canaries and Madeira were good for advanced cases. Very early cases, or advanced cases with vigorous constitutions, did well in Switzerland. Minute attention to the details of daily life and hygiene was necessary. Repeated counter-irritation was of value. As to pharmaceutical measures he had not much to say. Hypophosphite of lime was good in children and young people, and in the fair and florid; it did not agree with the dark and sallow, who responded indifferently to any form of treatment. He had seen excellent results in some cases in which sulphuretted hydrogen had been introduced into the bowel. From tuberculin he had also seen good results; in fact, only one failure had occurred, and that was in a dark swarthy subject. Antiseptic inhalations did good if persevered in, and he had great faith in creasote and guaiacol given internally, especially in large doses by the bowel. **Dr. Douglas Powell** said that the great essential to cure was a limited lesion. He thought that **Dr. Yeo's** distinction between tuberculosis and phthisis was purely arbitrary, the difference being only one of degree. The efficacy of the treatment by tuberculin depended upon the fact that it hastened the eliminative process; but it was undoubtedly a two-edged weapon. He quoted a case of arrest of advanced phthisis under the Weir-Mitchell treatment. Creasote and guaiacol were useful, but they required decided pushing. **Dr. de Havilland Hall** emphasised the need of adapting the treatment to the individual case. Change of residence and energetic counter-irritation were useful, and great benefit followed the inhalation of creasote. The resin of copaiba in capsule was useful in lessening cough and expectoration. **Dr. C. D. F. Phillips** had found that patients in the last stage of phthisis were not benefited by Madeira; no island, for its size, had so much phthisis among its inhabitants. He thought that too much had been said in praise of creasote, which, however, might be of great value where there was a gangrenous tendency. **Dr. Yeo**, in reply, agreed that the effect of tuberculin was to hasten elimination. In the Pyrenees were two health-resorts with sulphuretted hydrogen waters, which were claimed to do much good in phthisis. He quoted the case of a patient with advanced phthisis, whose life had been much prolonged by a residence in Madeira, which was much more popular than formerly. He repeated that he had seen better results from creasote than from any other remedy; it improved the appetite,

lessened catarrh of the lung, and apparently favoured sclerotic changes.

Reference may here be made to a suggestive paper by **Dr. A. Ransome** (*Brit. Med. Journal*, 1892, ii. 172) on re-infection in phthisis. Speaking of the *post-mortem* evidence of the curability of the disease, the author states that recovery is less common amongst the poor than amongst the rich ; and asks whether recurrence of attack may not be due to re-infection from external sources. Granted that the primary infection comes from outside, there is nothing unusual in a second infection, or even multiple infection from similar surroundings, the damaged lung being more vulnerable than a healthy one would be. It is, in his opinion, almost certain that the primary source of infection was some usual haunt of the patient, to which he returns on leaving the hospital ; and it may be that the further extension of the disease, which so commonly occurs, is due to re-infection from the poisonous atmosphere of the home. In favour of this view the following facts are adduced : instead of spreading along the absorbents, the disease often affects the opposite lung or the larynx ; if the patient undergoes hardship in the country, he is less liable to break down than if he is in his old home in town ; sometimes the interval between the return home and the fresh outbreak of the disease is from three to six weeks, the usual incubative period of tubercular infection ; and lastly, due weight must be given to those cases which after change of residence remain free from fresh outbreaks. Instances are quoted, of which it is truly said that not one of them can be recorded as a distinct and undoubted illustration of re-infection ; but the experience of such instances has led the writer to affirm the strong probability of re-infection on the patient's return to his previous conditions of life. The paper concludes with two practical deductions—the need of either change of residence or thorough disinfection of premises occupied by consumptives, and the duty of destroying by fire or corrosive sublimate the sputum from such patients.—It must be said, however, that a careful consideration of the arguments and facts adduced by Dr. Ransome does not lead to a conviction of the truth of his view, which may be regarded as an interesting theory as yet needing proof.

At the Medical Congress held in Rome, the startling assertion was made by **Pizzini** (*Rif. Med.*, Oct. 26, 1891) that the bacillus tuberculosis exists in a certain number of healthy persons. Out of thirty bodies examined, of persons who had died either from acute disease or from accident, and who had shown no signs of tuberculosis, eleven (cause of death, cerebral hæmorrhage, syncope, phosphorus poisoning, strangulation, gunshot wound, fracture of

skull, and results of fall from scaffolding) had bronchial glands which were in all cases healthy to the naked eye, but were capable by inoculation of infecting guinea-pigs with tuberculosis. That is to say, according to this observation 37 per cent. of healthy persons living in the open air and not brought into contact with phthisis have bronchial glands containing living infective tubercle bacilli. It is plain that these observations need corroboration.

Several interesting papers have appeared on the *climatic* treatment of tuberculosis. Dr. F. M. Sandwith (*Lancet*, 1892, ii. 711) gives a valuable summary of 400 cases of phthisis treated by him in Egypt during a period of seven years. Of these, 104 were visitors, and 298 were native hospital patients. No attempt is made to compare the results in the two groups, on account of the vastly better conditions under which patients of the former group were treated. The 104 cases are classed as follows:—Seventy-two improved, eighteen stationary, seven worse, seven deaths (the latter consisted of six men who were obviously doomed before their arrival, and one old case of fibroid phthisis, who died of acute pneumonia). The ratio of cases in which improvement occurred will compare favourably with that of other winter resorts. Most patients have reached Cairo in November, spent two or more months from the middle of December at Luxor in Upper Egypt, and then stayed till the middle of April in Cairo, at Helouan, or at the Pyramids. In April patients go to Ramleh, or to the Riviera, not reaching England till the very end of May. After a few weeks' residence in Egypt, expectoration becomes much lessened, as a result of the dry air; and this is one of the earliest signs of improvement. Some amelioration in appetite, weight, strength, sleeping powers, and general spirits, then takes place. Hæmoptysis is rare. For early and quiescent cases of phthisis Dr. Sandwith considers the climate of Egypt one of the best within an easy reach of England. Very advanced cases should not be sent from home. After nine years' practice in Cairo he has never met with a European who has developed delicate lungs there. Amongst the natives, on the other hand, there is an enormous amount of tubercular disease of every kind, one-fourth of the patients in a general hospital suffering from it. It is the negroes who specially swell the tubercle and mortality returns. Negroes, like monkeys, are especially liable to become tubercular in countries less dry and less hot than their own; and hence those who inhabit desert regions between Egypt and the equator find the latitude of Cairo comparatively damp and cold, though to the Englishman it is by comparison satisfactorily warm and dry. Phthisis is very rare in the Soudan and in Upper Egypt, but

extremely common in all parts of Lower Egypt amongst those who have migrated from the upper countries. (See also "Year-Book" for 1891, p. 47, § 28).

The *Lancet* (1891, ii. 1049) contains a very practical article upon the climate of Cape Colony. Its broad features are these:—Great dryness, clearness, and rarefaction of the atmosphere; abundance of sunlight; considerable maxima of heat, which are nevertheless free from depressing effects, and consistent with vigour and activity; cool nights; a considerable amount of wind; a long summer and winter, with a correspondingly short spring and autumn; much dryness of soil, and scantiness of forest and vegetation. The health record is on the whole good. There is no yellow fever or cholera. Pulmonary affections are said to be relatively infrequent; rheumatism and neuralgia are frequent. Speaking generally, accommodation and means of communication are bad. A careful distinction must be made between the various natural divisions of the country. These are:—(a) The coast region, including the littoral districts and the adjacent interior to an elevation of 1,000 feet; (b) the midland plateau, embracing the districts of elevation from 1,000 to 2,500 feet; and (c) the upper plateau, which includes the districts of elevation from 2,500 to 5,000 feet. The coast climate is relatively warm, moist, and equable; the midland climate cooler, drier, and more genial, but with a greater range of temperature; and the mountain climate drier still, and more bracing, but with much greater extremes of temperature, and cold nights and hot days—the mean range being more than double that of the lower or coast plateau. Port Elizabeth, Graham's Town, and Aliwal North may be taken as representing the three types of climate. The first has an elevation of 180 feet, the second of 1,800 feet, and the third of 4,330 feet. The mean summer temperature of the first is 66.8° ; of the second, 63.1° ; and of the third, 67.4° . The mean winter temperature of the first is 59.5° , of the second, 53.1° , and of the third, 48.8° . The mean range of temperature is in the first 14.6° (summer), and 14.1° (winter); in the second, 17.7° (summer), and 12.8° (winter); and in the third, 34.4° (summer), and 34.2° (winter). The rainfall is 19.99 inches in the first, 29.59 in the second, and 22.86 in the third. The comparative humidity of the air is 75 (summer) and 80 (winter) in the first; 74 (summer) and 77 (winter) in the second, and 55 (summer) and 77 (winter) in the third. The greater part of the central region of Cape Colony is known as the Great Karroo, an elevated plateau. This may be divided into a lower and an upper region, the former having an average level of 3,000 feet, the latter including altitudes varying

from 2,700 to 6,000 feet, one point—the Compass Berg—7,800 feet, being the highest in the colony. The climate of the Great Karroo, while varying with the elevation, is characterised by extreme dryness and severe and prolonged droughts, the rainfall being everywhere very small; intense heat in summer; cool nights, owing to the energy of radiation; and absence of cloud and dust storms. The winter is the best time; at this season the nights are very cold, but there are usually several hours of bright sunny weather between 9 a.m. and 3 p.m.; and the air is remarkably clear, bright, and bracing. The snowfall on the plains is usually small. Phthisis is said to be extremely rare on the Karroo plateau; but it is a question whether this may not be due to sparseness of population and the active out-door life of the inhabitants. The general features of Cape Colony as a sanatorium may be gathered from the above description. The coast-line is not as a rule to be recommended, but the interior affords a good type of a peculiarly dry, bracing, and exhilarating climate; the elevation being everywhere considerable, and the climate hence sharing the features of the dry inland and the mountainous resorts. Among the places specially deserving of note by travellers for health may be mentioned Graham's Town, a great educational centre, with considerable natural beauty and a fine climate; Queen's Town, elevation 3,500 feet; Cradock, elevation 2,856 feet; Beaufort West, same elevation; Aliwal North, elevation 4,348 feet; Tarkastad, elevation 4,280 feet; and Burghersdorp, elevation 4,650 feet. Pulmonary cases would do well, at least at first, to leave the coast as soon as possible and try one of the moderately elevated resorts such as Graham's Town or Cradock; and the results of residence and treatment there should determine the invalid's future course. It cannot be too clearly laid down that Cape Colony is wholly unsuited to advanced and broken-down cases of disease. It is the fairly hardy patient, whose strength is still moderately well maintained, and who is prepared to "rough it," that may most confidently be advised to make trial of the Karroo plateau. Cradock, Beaufort West, and Burghersdorp have some special repute in phthisis. Cases of chronic pneumonia, or of pulmonary collapse after whooping-cough, are said to do well at Aliwal North and Tarkastad. Cases of chronic bronchitis and asthma are said to benefit by the climate of the plateau, but no general rule can be laid down; probably bronchitic patients with profuse expectoration would benefit by the dry warm air of this region, but dry and irritable bronchitis would almost certainly be aggravated by it. The voyage to the Cape can be accomplished in from fifteen

to eighteen days, and the accommodation on ship-board is good. The run is about 6,000 miles, through many degrees of latitude and much variety of climate. As a rule the heat of the tropics is not injurious to the invalid, and the voyage is one of the most interesting and agreeable of the shorter trips. It is hardly long enough to produce much benefit in pulmonary cases, but it forms a pleasant and useful preliminary to a prolonged residence in the interior of Cape Colony.

The Caucasus as a health-resort forms the subject of a communication from Dr. Seslavin (*Lancet*, 1891, ii. 1236), who gives an account of observations made during a two years' residence in Abas-Turnan, one of the best localities in the Caucasus for phthisical patients. This, like Kislovodsk and Borzhom, is a summer station; winter ones being represented by Batoum and Lukhoum, in which the weather is warm enough to allow patients to spend the greater part of the day in the open air, enjoying the sunshine and breathing the pure air of the steppes. These stations can be recommended from October to the middle of May, during which time malarial fever is at its minimum; in the summer the heat is excessive, and there is a good deal of fever and diarrhœa. The summer stations are all situated in a gorge protected from the north by mountains, and the temperature is moderate and fever and diphtheria are practically unknown. Nine out of ten of Dr. Seslavin's patients improved soon after coming to Abas-Turnan, the temperature falling, and night-sweats diminishing or even ceasing, with improvement in general health and lessening of cough. The weight usually diminished slightly at first, and afterwards increased. In most cases the physical signs improved; and the bacilli became fewer, and disappeared altogether in a few instances where the patients remained at the summer and winter stations for several years.

(b) Treatment of tuberculosis by special remedies.

The "Year-Book" for 1892 contained a fairly complete summary of the history of tuberculin from its introduction down to the time that its defects were generally recognised; and in that volume the conclusion was arrived at that this fluid, judged by practical results, was not of special value in the treatment of tuberculosis, and that its use was associated with grave risks from which other remedial measures were free. This view has been borne out by the experience of the past year. The communications on Koch's method have been few, and of no great importance; and this treatment of tuberculosis has been abandoned by the great majority of observers.

Professor Koch himself makes a quasi-apologetic communication

on tuberculin (*Deutsch. Med. Woch.*, Oct. 22, 1891), in which he describes the nature and mode of preparation of the fluid, and the result of experiments made with a purified form of this substance; but he adduces no fresh evidence of its therapeutic value, and altogether ignores the researches already made by other observers into the composition of tuberculin and the properties of its several constituents. He concludes, in fact, that there is no marked difference in effect between the crude and the purified form of the fluid.

Professor Ehrlich (*Lancet*, 1891, ii. 917) communicated to the Congress of Hygiene and Demography a much abler defence of Koch. He expresses the opinion that it is practically uncontested that the occurrence of local reaction is proof of the existence of tuberculosis; there being only two other conditions—actinomycosis and leprosy—in which local reaction has been observed. The diagnostic value of general febrile reaction is more open to discussion. The method of treatment at first adopted was wrong, as the strong reaction produced by the large doses given caused the rapid decline of the reactive power of the tissues, and hence the successful continuation of the treatment and the prevention of relapse were impossible. The essential principles now advocated are the avoidance of strong general and local reaction, the employment of small doses, and a slow and gradual increase in their amount. Besides the avoidance of complications and of exhaustion, the chief advantage of the small doses is that toleration is not so easily induced, and even after months of treatment a febrile reaction may occur if the dose is increased. The following procedure is now recommended by Koch. The dose should be large enough to produce definite local reaction. In phthisis this is to be recognised by the production of small elevations of temperature, but these should not reach actual febrile temperatures of 38° C. and upwards. In vigorous patients without advanced disease, the first dose may be $\frac{1}{2}$ mgr.; but in debilitated patients or those suffering from advanced disease it is better to begin with $\frac{1}{10}$ mgr. The injections should be repeated at intervals of two, three, or even more days, and the quantity is not to be increased until the temperature reaction has disappeared. Where hectic exists, it has been found advantageous to administer doses of from 3 to 5 decimilligrammes several times a day, and to increase the quantity very slowly. By this means, in the Moabit Hospital and elsewhere, very decided improvement has been obtained in a short time, the hectic often being completely brought to an end within the first eight to fourteen days. The attention must also be directed to

increasing the curative effect of tuberculin by combining it with suitable drugs, thus utilising the local transudation induced by the local reaction to expose the bacilli to the action of destructive agents. The author says that the signal results obtained by **Langenbusch** in the treatment of phthisis by the combination of tuberculin with other suitable substances, especially picric acid and sublimate, are established facts; the cases were unselected, and on the whole rather unfavourable, and still of ninety-nine cases 40 per cent. improved and 33 per cent. were cured. Ehrlich claims that by the method of small doses the dangerous secondary pneumonic processes are avoided; and probably also the risk of dissemination of the disease, as the encapsulating of the tubercular masses is secured by it. He concludes with a brief reference to the therapeutic results so far obtained, and says that most authorities agree that under tuberculin remarkable improvement is observed. It is especially shown in the diminution or disappearance of râles, the changes in the sputum and the ultimate disappearance of bacilli from it, the cessation of cough, hectic, and night-sweats, improvement in the general condition, and considerable increase in weight. An equal degree of improvement is quite unknown under other kinds of treatment, and there is no reason why the cases regarded as cured by the tuberculin treatment should not be considered so as much as those which have been treated by such methods as the hygienic dietetic measures in vogue at Falkenstein and other places.

Professor Klebs (*Deutsch. Med. Woch.*, Nov. 5, 1891) publishes the results of researches undertaken to remove from tuberculin the substances that produce injurious results, which he regards as the alkaloidal constituents. He found that when the precipitate obtained by treating tuberculin with alcohol was treated with chloroform or benzol, the "lymph" contained very little alkaloid, but was just as effective against tuberculosis in the case of animals. The active substance, which he calls "tuberculocidin," is an albumose, and, while producing an undoubtedly good effect in tuberculosis, does not cause fever. Under its use hectic and night-sweats disappear, the physical signs, cough, and expectoration rapidly lessen, and appetite and weight increase. The bacilli in the sputum become granular and take the stain less readily, and gradually disappear. Klebs has already treated nearly 100 cases, chiefly of pulmonary tuberculosis; and out of seventy-five in which a reasonable time has elapsed, forty-five are improved, fourteen remain unaltered, and two have died.

The result of the tuberculin treatment of phthisis is the subject of a report issued from the Brompton Consumption

Hospital (*Lancet*, 1892, i. 41). The number of cases treated was twenty-eight. Improvement took place in fifteen, one was stationary, and twelve grew worse, including three who died. Weight was gained in 53·5 per cent., unaltered in 14·2 per cent., and diminished in 32·1 per cent. The reporters admit that tuberculin speedily causes inflammation in and around tubercular lesions, as proved by the appearance of lung-tissue in the sputum, and by cavity signs replacing those of consolidation. Sputum was increased in amount, but there was no proof of diminution in the number of bacilli, which in some cases was increased. The injections were followed in many cases by extension of the disease. In two there was evidence of fibroid contraction of cavities under treatment. The method is contra-indicated in lung tuberculosis with pyrexia, as likely to convert intermittent into continuous fever. The final judgment is as follows:—"That the tuberculin did not favourably influence the course of the disease in the majority of cases; that in some the effects were detrimental; and that even in the stationary and improved cases it was difficult to ascribe any distinct improvement to the injections, as this might have been equally attained under the treatment ordinarily employed in the hospital." There is no doubt that the above accords with the general experience of unbiassed observers.

Creasote and guaiacol still maintain their reputation in the treatment of phthisis. But Dr. F. P. Kinnicutt, in the Middleton-Goldsmith Lecture (*Boston Med. and Surg. Journal*, May 26, 1892), adduces evidence opposed to the common belief that large doses of these drugs are essential. Seven cases were treated with subcutaneous injections of guaiacol, rapidly pushed till a gramme was administered daily; and five cases with creasote by the mouth, rapidly pushed up to six grammes daily. In four of the guaiacol group the physical signs were practically unaltered; in one the general condition much improved, and there was a gain of 8 lb. in weight; in one there was a loss of $1\frac{3}{4}$ lb., and in another of 4 lb.; while in one there was no change in weight. In the three remaining cases there was a progressive increase in the pulmonary lesions. Hectic was not influenced, but night-sweats were checked. In one case complicated by renal disease the amount of albumen was much increased when the dose had become one gramme daily. In the cases treated with creasote physical signs remained unaltered in two, but in the remainder steadily increased; night-sweats were checked as with guaiacol. No unpleasant symptoms were caused by a daily dose of 6 grammes in three cases. Carbonate of guaiacol is recommended

as being tasteless and odourless, and seeming to improve the appetite. The writer draws the following conclusions:—That both creasote and guaiacol in certain forms can be given in very large doses without any injurious effect, but that such doses do not appear to possess any advantage over small ones; that subcutaneous injection of the drug has no advantage over administration by the mouth; and that benefit can be expected only from its continued and prolonged employment.

The administration of creasote by the rectum is advocated by Dr. Revillet (*Therapeutic Gazette*, 1891, p. 717). His formula is the following:—

R. Creosoti puriss.	...	...	2-4 grammes (gtt. xxx = f 3i).
Ol. Amygdal. Dulc.	...	...	55 grammes (f 3vi).
Aq. Distill.	...	...	200 grammes (f 3vii).
Vitell. Ovi	...	...	1 gramme.

The injections are given in the evening, before the patient goes to bed, after a preceding injection to clean out the bowel. Absorption takes place at once; the patient notices the characteristic taste, and the urine becomes blackish or black-green. At the same time the temperature falls, as after antipyrin. The injections are well supported and absorbed. The drug is taken up by the branches of the portal vein, and eliminated by the salivary glands, pulmonary mucous membrane, and above all by the kidneys. Creasote should not be prescribed in large doses unless the liver, heart, and kidneys are sound. In tubercular diarrhoea the injections seem to arrest the discharges.

Seifert and Hölscher (*Berl. Klin. Woch.*, Dec. 14, 1891) say that the differences of opinion with regard to the action of creasote are due to its varying composition, and that both creasote and guaiacol act as irritants to the digestive tract. Guaiacol carbonate, on the other hand, is constant in its composition, has no taste or smell, and no ill effect on the digestive organs. This drug was administered to sixty phthisical patients in doses of 0.2 to 0.5 g. daily, gradually increased to 6 g.; appetite and weight increased, cough, sputum, and night-sweats lessened, and even physical signs are said to have improved. The good effects develop gradually, and the drug should be continued for a long time.

The same authors (*ibid.*, Jan. 18, 1892) further show that the effect of guaiacol is not due to its action on the digestive organs, nor does it kill the bacillus or limit its growth as it does outside the body, for in combination with the blood it has been proved to have no such action. The drug is eliminated as a salt of ethylsulphuric acid, and thus must have combined in the blood with

albuminous bodies. In phthisical blood there are albuminous bodies which are the products of the growth of the bacillus, and cause the sweating, fever, and disordered digestion. The guaiacol combines with these and renders them harmless; and they are further changed by decomposition, the guaiacol being set free as a salt of ethyl-sulphuric acid, and the other products being eliminated in the urine. There is little evidence that drugs absorbed into the blood act directly upon micro-organisms; in most infective diseases the object must be to get rid of the poisonous products of these organisms; and doubtless agents may be found that will combine with these toxic albumens and lead to their elimination.

Severe symptoms of poisoning were produced by creasote in a case recorded by **Dr. W. Freudenthal** (*New York Med. Rec.*, April 23, 1892). The patient, a lady, who had reached the large dose of 2·4 grammes twice daily, on one occasion took two doses within a short time; she became unconscious, and remained so for eight or nine hours; the eyes were closed, the breathing was stertorous, loud coarse râles in the chest could be heard at a distance, the jaws were tightly clenched, the lips were cyanotic, and the pupils were contracted and insensible to light; all reflex movement was abolished, and urine was passed unconsciously. The pulse was 128, and the respirations 30. The kidneys were not affected. Stimulants were given, and recovery ensued; and afterwards even larger doses were taken without harm.

The rectal injection of eucalyptus oil is advocated by **Dr. J. C. Voight** (*Lancet*, 1892, i. 795). In a case of advanced phthisis with marked hectic and diarrhoea, profuse expectoration, and abundant bacilli, he injected into the rectum five times daily half a drachm of eucalyptol in a tablespoonful of warm olive oil. Diarrhoea, fever, and night sweats ceased within a few hours, sleep and appetite were excellent, and the patient could sit up and walk about the room.

Professor Oscar Liebreich's cantharidines (see "Year-Book" for 1892, p. 73, § 16) have met with but little favour, the preponderance of evidence being decidedly adverse to their use. **Dr. F. Coccia** (*Rif. Med.*, July 7, 1892) states that the injections are very painful; doses of ·0002 g. are dangerous in advanced phthisis, which should not be treated at all by this method; if long continued, the injections cause physical prostration and serious mental depression; in early cases the night-sweats and the general condition may be favourably influenced, but fever is not touched, nor are the bacilli or the pulmonary lesions. Tubercular ulcers in the larynx are practically not affected, contrary to Liebreich's statements. **Dr. G. Crisafulli** (*Brit. Med. Journal Suppl.*, 1891,

ii. 111) also reports two cases of phthisis treated with injections of cantharidinate of potash, in which the results were entirely negative. In one case there was no general reaction, but in the other the temperature sometimes rose after the injections, and in this patient increase of the laryngeal swelling followed the third injection. In both cases intense pain was produced at the site of injection. No renal complication occurred. At a meeting of the Medical Academy of Genoa (*Therap. Gaz.* 1891, p. 763) Devoto related observations to show that the exudation caused by cantharidin was of a low type, and Professor Maragliano said that he had used the drug in four cases, in all of which it had to be discontinued, owing to the development of renal complications; while Dr. Cantù had also been obliged to abandon its use on account of the "serious general and local phenomena" which it produced. In thirty cases of tuberculosis, in which the sodium salt was used as causing less pain than the potassium, Demme (*Therap. Monatsh.*, March, 1892) found albuminuria to appear in every instance, and in five it persisted when the treatment was stopped. He therefore concludes that the drug must be used with great caution. The effect on the lungs was slight, but expectoration became easier; and the general results were not definitely good. Dr. A. J. Chalmers (*Brit. Med. Journal*, 1892, i. 40) calls attention to another source of danger from hypodermic injections of the cantharidines. Vomiting and pain in the stomach may come on some time after the patient has been under treatment, and this must be remembered in association with the fact that cantharidin has been successfully used experimentally to cause perforating ulcers in the stomach of rabbits, and also to set up a severe form of gastritis. And finally, Drs. W. S. Fenwick and A. G. Welsford (*Brit. Med. Journal*, 1891, ii. 1349) sum up as follows the results of their observations on sixteen cases:—(1) that cantharidinate of potash is absolutely useless in producing any obvious beneficial effect in pulmonary tuberculosis. (2) That in doses of 0·2 mg. it is apt to produce albuminuria, with pain in the loins, strangury, and hæmaturia. (3) That it should therefore in no case be used without the most careful supervision, and that it is consequently ill adapted for out-patient practice.

Professor Liebreich (*Therap. Monatsh.*, June, 1892) in replying to criticisms of the cantharidinate treatment, says that the chief points to decide are whether any action is exerted by it upon diseased, and especially upon tubercular, tissue; and if so, whether this is obtained before disturbance is produced in other organs, especially the kidneys. He states that the drug causes increased exudation, but no hyperæmia; and that in his cases of

lupus a steady improvement has occurred, though it is impossible to cure rapidly a disease that has lasted for years. If the kidneys are healthy, doses of $\frac{1}{4}$ to 2 decimilligrammes are safe; but disease of these organs contra-indicates the treatment. Advanced tuberculosis should only be treated with the greatest caution, on account of its frequent association with lardaceous disease of the kidneys. In hundreds of injections there has been no more danger than from the medicinal use of mercury or arsenic.

In spite, however, of Liebreich's plea, there is little doubt that the cantharidines as remedies for tuberculosis are already condemned as not only useless, but actually dangerous.

A word will suffice with regard to two other hypodermic remedies—dog's serum and Brown-Séquard's fluid. Héricourt (*Arch. Gén. de Méd.*, April, 1892) reports observations showing that dog's serum has not a microbicidal action in tuberculosis, but is a tonic and restorative if the disease is not too far advanced. Thus in the first and second stages of the malady appetite and digestion improve and weight increases; but the local lesion still advances, and in two or three months the effect of the serum seems exhausted. The dose given was one to two cubic centimètres of the blood, injected every two or three days. Dog's serum has also been found useful in other cachectic conditions, such as syphilis. According to Dr. Macfadyen (*Brit. Med. Journal*, 1891, ii. 1173), the belief that dogs possess an immunity from tuberculosis, on which this method of treatment is founded, is not in accordance with fact, as the canine species enjoys no such immunity from the disease (see also "Year-Book" for 1892, p. 75, § 18). With regard to Brown-Séquard's fluid, Dr. M. K. Zieniec (*Brit. Med. Journal Suppl.*, 1891, ii. 125) relates five cases of phthisis in which it was used. In three the disease was advanced, in the other two it was more recent, though marked. After a fair trial the treatment was abandoned, as no permanent benefit resulted (see also "Year-Book" for 1892, p. 76, § 19).

Amongst other remedies for tuberculosis may be noticed :—(1) Monochlorophenol, advocated by Dr. Passerini (*Lancet*, 1891, ii. 1410), which is a compound by Tacchini, a chemist of Pavia. It is used as an inhalation; and being a powerful antiseptic, like trichlorophenol, but much less irritating, and being besides exceedingly volatile, it is capable of penetrating deeply into the lungs, and it is thought may act directly upon the tubercular foci. The inhalations may be continued for a long period, and are said to cause the bacilli to diminish and even to disappear from the sputa, and to produce a most marked improvement in the symptoms. In five cases of phthisis in an early stage complete

recovery is said to have ensued after two months' treatment, no recurrence of the symptoms having occurred within the following six months. (2) Chlorine inhalations, and hypodermic injections of iodine and chloride of gold and sodium. **Drs. Heneage Gibbes and E. L. Shurly** (*Therapeut. Gaz.*, 1892, pp. 235 and 305) give the later history of cases of phthisis previously reported (*ibid.* 1891, p. 217) as treated with these remedies. Of twenty-seven cases, twenty-six were traced; and their condition a year after the first communication was as follows:—Practically well, thirteen (or 48·14 per cent.); dead, nine (or 33·3 per cent.)—one being said to have died from typhoid fever after parturition; growing worse, four (or 14·8 per cent.). A further series of thirty-two cases is now reported, with the following results:—Recovered (so-called), thirteen; improved, nine; not improved, three; died, seven. (3) Parenchymatous injections of pyoctanin. **Drs. Petteruti and Mirto** (*Rif. Med.*, Feb. 1, 1892) summarise as follows their experience of parenchymatous injections of this substance in phthisis. Injections (of 1 in 500) into a phthisical cavity produce no signs of reaction; hectic is diminished, and bacilli disappear from the sputum during the injections, to return in smaller numbers after they are discontinued. The effect is injurious if the solution gets into a bronchus, abundant mucous flakes and ciliated epithelium being expectorated; and direct injection into a bronchus also causes a most troublesome irritative cough. And finally, acute nephritis may undoubtedly be produced.

Amongst the curiosities of treatment may be mentioned vaccination. **V. A. Turiansky** (*Vratch.*, 1891, No. 41, p. 923, in *Brit. Med. Journal Suppl.*, 1891, ii. 190) used hypodermic injections of fresh calf-lymph in apical phthisis, and says that the injections were “invariably, though somewhat slowly, followed by most decided amelioration of both the subjective and the objective phenomena.” The temperature became normal, appetite and sleep improved; night-sweats, dyspnoea, muscular weakness, and painful sensations decreased; cough either was diminished or disappeared; expectoration lessened, the pulse became slower, and weight increased; while the physical signs cleared up. In short, the usual list of benefits associated with a remedy when it is first introduced, and divorced from it when it is better known.

Interesting observations have been made upon the influence of the anthrax virus and of avian tubercle on the development of tuberculosis.

Dr. Perroncito (*Gazz. degli. Ospit.*, Jan. 21, 1892) reports some experiments with anthrax virus. He was led to make this inquiry

by observation of the fact that in Italy the districts in which protective vaccination of cattle against anthrax had been adopted on a large scale were remarkably free from tuberculosis. From his experiments he concludes (1) That cattle vaccinated against anthrax are insusceptible to vaccination with tubercle; (2) that the saturation of a tubercular animal with anthrax virus renders the tubercular disease stationary, and makes the tubercular nodules inert as tested by cultivation and inoculation; and (3) that rabbits are unsatisfactory animals for experiment, for if a strong vaccination virus is used they die of anthrax, and if a weak one is employed they die of tuberculosis.

Mr. T. J. Bokenham (*Brit. Med. Journal*, 1892, ii. 437) gathers from this that Perroncito was not successful in vaccinating rabbits against anthrax, and therefore had no means of estimating the true effect of the anthrax vaccination upon the tubercular process. He has himself, however, succeeded in vaccinating six rabbits against anthrax, and these were inoculated with tubercular matter. Four of them died of general tuberculosis in about the same time as a control rabbit inoculated with the same material. The fifth contracted a local tuberculosis at the point of inoculation, and in the sixth the introduced caseous matter was thrown off by acute local suppuration, the animal remaining apparently healthy; this, however, may happen in an unprepared animal, and is therefore of no special importance.

MM. Héricourt and Richet (*Lancet*, 1892, i. 1389) have made interesting experiments on the protective powers of avian tuberculosis on dogs. Four dogs were inoculated with human tubercular matter, two of them having previously been inoculated with avian tubercle. Both the first two died twenty-two days after. One of the second group was killed four and a half months later; and, although in apparent health, was found to have tubercular lesions, the pulmonary organs having undergone considerable sclerogenic change. The other "vaccinated" dog was still alive and well six months after inoculation. Another series of four "unvaccinated" and four "vaccinated" (with avian tubercle) were subjected to inoculation with equal quantities of human tubercle. One c.c. of a culture forty-five days old was injected into the saphenous vein, and the inoculation was repeated twice. On the same day three other dogs, already "vaccinated," received a single dose of human tubercle. The results were most striking. The four "unvaccinated" animals died on the eighteenth, twenty-first, thirtieth, and forty-fifth days respectively, whilst all their "vaccinated" comrades were still apparently in perfect health.

(c) Treatment of (1) night-sweats, (2) hæmoptysis.**1. Night-sweats.**

Tellurate of sodium was employed by Dr. Pokoruky (*Lancet*, 1892, i. 657) to check night-sweating in fifty cases of phthisis. The dose was $\frac{1}{7}$ grain, gradually increased to 1 grain, in pill. Usually $\frac{1}{2}$ grain in the evening would prevent sweating during the night; but day-sweats required rather larger doses. The action of the drug usually began in about three-quarters of an hour; but in obstinate cases sweating recurred in from five to seven hours. Long-continued doses of a grain occasionally caused eructations, and loss of appetite. In healthy persons $\frac{1}{3}$ grain, or even $\frac{1}{6}$ grain, entirely prevented perspiration. Dr. V. Cébrián (*Siglo Med.*, Nov. 8, 1891) also speaks well of this remedy, which he administered in doses of 3 centigrammes in pill. The second dose was usually followed by marked lessening of diaphoresis, and the third almost always stopped it altogether. The remedy has no other influence, except that sometimes loss of appetite ensues, and occasionally it has a slight hypnotic effect. In one case toxic symptoms (vomiting, general *malaise*, restlessness, and intense headache) so regularly followed each dose that it had to be abandoned. The most serious obstacle, however, to its general use is the strong garlicky smell which it imparts to the breath and the perspiration. When the pulmonary lesions are far advanced, the drug is apt to set up profuse liquid diarrhoea, very difficult to check. (See also "Year-Book" for 1892, p. 81, § 25.)

2. Hæmoptysis.

Bamberger (*Therap. Gazette*, 1892, p. 288) recommends the following treatment:—

Powdered alum	...	...	...	...	gr. xxx.
Hydrochlorate of morphia...	...	...	...	...	gr. $\frac{1}{2}$.
Powdered white sugar	...	...	...	...	ʒi.

Make into six powders, and give all of them in the space of three or four hours in cases of profuse hæmoptysis with cough. Keep the patient absolutely quiet, and apply mustard poultices and external heat to the extremities.

Useful advice on the treatment of hæmoptysis is given by Professor H. Nothnagel (*Lancet*, 1891, ii. 949). He attaches the greatest importance to absolute rest. If the hæmorrhage is at all great, the patient must not speak, or must only whisper—or, better still, he should write down what he wishes to say. No visitors must be admitted. The room must be kept at an even temperature. Cold milk is the best food for the first two days,

and then ordinary diet may be gradually substituted ; but all food which may stimulate the heart must be avoided. Cough should be checked as far as possible by the use of morphia. If the hæmoptysis does not cease, other means must be used. Certain common remedies are physiologically inadmissible : for instance, perchloride of iron, which causes the blood to coagulate and form a thrombus ; tannic acid and alum, which contract the blood-vessels only when diluted to $\frac{1}{6}$ th per cent., and are therefore useless. Inhalations are of no value. The only two remedies which the author recommends are ergotin and acetate of lead ; the former either by the mouth or hypodermically, the latter internally combined with opium. If no other remedy is at hand, half a teaspoonful of common salt may be given. The ice-bag is of very doubtful value, as its action in any case is to be questioned, and in some patients it causes dangerous cough. An extreme remedy is venesection. It is well known that when syncope from loss of blood occurs, hæmorrhage usually ceases ; and this has been noted in hæmoptysis.

Dr. G. Busuttil (*Lancet*, 1891, ii. 881) confirms Sir Andrew Clark's observations on hæmoptysis in elderly persons ("Year-Book" for 1891, p. 37, § 12), and relates three cases. A man aged 72, subject to rheumatism and to asthma from emphysema, was admitted into hospital for profuse hæmoptysis. Astringents were useless ; but a saline aperient, followed by iodide of potassium, as recommended by Sir A. Clark, was attended in three days by cessation of the hæmorrhage. The second patient, aged 66, was subject to rheumatic arthritis and chronic bronchitis ; alkalies were given, and in six days hæmoptysis and pain had disappeared. The third case was fatal. A woman who had suffered from osteoarthritis for seven years, and who had had syphilis, was attacked with hæmoptysis, which was unchecked by astringents, but ceased in four days under iodide of potassium in doses of four grains every four hours. Ten days later the hæmorrhage recurred with such severity as to prove fatal in two hours. The autopsy showed the existence of atrophied kidneys, together with secondary vascular changes. It is doubtful, however, whether this case belongs to the category described by Sir Andrew Clark, as he expressly excludes an association with arterio-capillary fibrosis, in which condition the tendency to hæmorrhage is well known.

IV.—DISEASES OF THE PLEURA.

Dr. E. Rickards contributes (*Brit. Med. Journal*, 1892, i. 1067) a valuable paper on the treatment of pleurisy. In his opinion no

treatment will prevent effusion, and no measures beyond keeping the patient in bed and improving the general health will promote the natural absorption of the fluid. Diuretics are not only useless, but harmful; as commonly prescribed they do not cause diuresis, but they lower the vitality. The fluid may be removed by aspiration or siphonage, which is practised for four objects:—(1.) To prevent death, or relieve urgent symptoms due to rapid or excessive effusion. The best guide to danger is dyspnœa, and especially orthopnœa; when this occurs, delay is dangerous. About two pints of fluid may usually be removed. (2.) To shorten the duration of the disease. For this end operation should not be performed until fever has ceased, unless it continues more than a fortnight; and as much fluid as possible should be removed, unless unpleasant symptoms are produced. If further aspirations are needed, an interval of three days is allowed between them. (3.) To prevent an effusion from becoming chronic—a chronic effusion being one which in spite of repeated aspirations persists for three or four months; some such get well in the long run, some die of phthisis, in some empyema results, in some the effusion is permanent. This is usually the result of allowing patients to walk about before the fluid has entirely disappeared; absorption is always slow if the patient is not kept in bed. (4.) To prevent the collapsed lung from becoming bound down so as to be inexpandible.

For empyema there is but one treatment—to evacuate the pus and drain the pleural cavity. Cases in which recovery follows simple aspiration are curiosities, and must not be allowed undue weight.

Further testimony is given to the value of the salicylates in pleurisy. Dr. H. Köster (*Therap. Monatsh.*, March, 1892) details the results of the treatment of 32 cases of serous pleurisy by these drugs. In 17 out of 27 apparently simple cases of non-tubercular pleurisy, the result was decidedly favourable. Fever nearly always began to diminish at once, and in a few days was gone; absorption of the fluid was usually rapid and soon completed—usually in from five to seven days. The dose given was 15 grains of the acid, or 22 of the sodium salt, three or four times a day. As a whole the results were good, although by no means uniformly so; and sometimes no benefit was obtained, even though the cases were apparently just like those in which recovery quickly ensued.

Dr. Sigmund Déri (*Lancet*, 1891, ii. 831) reports the case of a man, aged 29, who caught cold and was attacked with severe bronchitis and right pleurisy with effusion. He came under treatment during the seventh week, and in one week the catarrh

lessened and the fever disappeared; but the fluid remained. During the twelfth week an attack of acute rheumatism developed, for which salicylate of soda was given; and on the fifth day the rheumatic symptoms had nearly disappeared, and the pleuritic effusion was remarkably diminished. After another four days the fluid was completely absorbed. This occurred in 1885, and up to 1890 nine cases of extensive serous pleuritic effusion were treated, of which statistics are given; and the author comes to the following conclusions:—Although a powerful diuretic, it is not in this capacity that salicylate of soda causes absorption of the effusion, but by some specific action similar to that which it exerts in acute rheumatism. As long as inflammatory symptoms persist, the remedy has only a trifling effect, if any; but during the third or the fourth week its influence is always exerted. Tuberculosis of the lungs, and especially of the bowel, and displacement of the heart, contra-indicate the use of the drug. Debilitated patients bear large doses well, no unpleasant symptoms being met with. Relapse does not occur, and hence the need for surgical interference is less urgent. Dr. M. A. Strizoon (*Brit. Med. Journal*, Suppl., 1891, ii. 134) gave salicylate of soda in one-gramme doses three times a day in eight cases of pleuritic effusion. In some instances the temperature rapidly fell to normal, and in about a week the symptoms were all relieved, and much of the fluid had been absorbed; and all the cases were quite well in about 18 days. In the eighth case the treatment entirely failed, and empyema was proved to exist, which was cured by radical surgical measures. The following conclusions are drawn: that salicylate of soda is undoubtedly a most valuable remedy in serous pleurisy, and that it affords a trustworthy means of distinguishing serous from sero-purulent or purulent pleurisy, on which it has no influence. (See also "Year-Book" for 1891, p. 62, § 45.)

Hitherto physicians have hesitated to recommend the treatment of persistent serous pleurisy by incision and drainage as in empyema, deterred by the fear of converting a serous into a purulent effusion with chronic fistula. Mr. B. Baskett (*Lancet*, 1891, i. 1298) reports a case in which this method was adopted with ultimate success, although an empyema was produced. A middle-aged man was admitted into hospital with a large pleuritic effusion on the left side, of about six weeks' duration. Aspiration was performed seven times, from two to six pints of fluid being removed at each operation; but as the patient was going down-hill, a drainage-tube was inserted as if for empyema, although the fluid was still serous. Secretion continued at an enormous rate, but the lung began to expand. Before three

weeks had passed the fluid became purulent. The discharge gradually lessened, the general health improved, and in four months the cavity was closed and the man was restored to health.

The relative value of aspiration and free opening in the empyema occurring in children is discussed by **De Gassicours** (*Rev. des Malad. de l'Enfance*, Feb., 1892). In many cases the pus contains pneumococci, usually in pure cultures; and this is a favourable sign, for cure by aspiration may be hoped for, and may occur after a single operation, although usually more will be needed. Three punctures should be made, at intervals of five days, and if after the third—that is, after fifteen days—pus is still present in large quantities, a drainage-tube should be inserted. When streptococci are present with the pneumococci, there is much less probability of cure by aspiration alone, although this may occur even then. It cannot be too clearly recognised, however, that in empyema delay is dangerous, that the chance of cure by aspiration is small, and the risk to the lung from long-continued compression by the fluid is great—to say nothing of the general symptoms which commonly mark the presence of pus. Incision and drainage for empyema in children is so satisfactory an operation that there need be no hesitation in its adoption; and the best rule to follow if pus is present is to aspirate once, and if the fluid re-accumulates, to establish a free opening forthwith.

An interesting discussion on aspiration in pneumothorax has recently taken place in the *Lancet* (1892, i. 1419; ii. 55, 168, 283, 455). **Dr. G. A. Sutherland** reports a case of phthisis in which pneumothorax occurred, the left pleura being extremely distended with air, and the pulse and respiration much interfered with. A hollow needle was inserted, but no air escaped. The aspirator was then attached, and during an hour a considerable quantity of air was withdrawn by slow and interrupted aspiration. Great relief and improvement followed. The symptoms recurred next evening, and both air and fluid were drawn off by the aspirator. A month later 34 ounces of clear fluid were withdrawn; local and general improvement now rapidly followed, and in four months from the onset of the attack the expansion of the chest was fairly good, and the breath-sounds, though weak, were audible all over. Impaired resonance remained. **Dr. Sutherland** remarks that aspiration is not advised in pneumothorax by the leading authorities, on account of the risk of re-opening the original aperture in the lung. But it is evident that simple puncture will be useful only when the pressure of air in the pleura is greater than that of the atmosphere, which **Fagge** says is seldom the case.

On the other hand, Dr. Douglas Powell has shown that the normal elastic retraction of the sound lung drags the mediastinum over, even when the pressure of the effused air is not greater than that of the atmosphere. In such a case, therefore, little good can result from simple puncture; and it is probable that the dangers of slow aspiration have been exaggerated. Professor Gairdner takes exception to the use of the aspirator in pneumothorax, and questions the statement that no air passed out on simple puncture, but believes that it would have escaped quietly had time been allowed. Dr. Sutherland reiterates his statements, and says that the object of aspiration was not merely, as Professor Gairdner supposes, to remove the whole or the greater part of the air, but to produce such an exhaustion of the air as would allow of the re-expansion of the *sound* lung, based upon Dr. Powell's statement quoted above. Professor Gairdner returns to the attack, and points out that any such exhaustion of the air must inevitably, and suddenly, tend to draw the air from within the *diseased* lung towards the exhausted pleural cavity, and hence to reopen the perforation. He says that he has known this to occur in aspiration for pleuritic effusion, as indicated by a succussion sound that was not present before the operation, and lays it down that if in pneumothorax there is not pressure enough to make the air rush out when a cannula is inserted, there is no occasion to use the aspirator. Dr. Sutherland again points out that the air was removed slowly and with the greatest care, so as to avoid any sudden alteration of pressure in the pleural cavity, and explains the presence of air in the cavity after aspiration of fluid, mentioned by Professor Gairdner, as due to its entry from outside as a result of the operation. My own experience would bear out Professor Gairdner's view that if the pressure of the air in the pleural cavity is not great enough to make it escape spontaneously when the cannula is inserted, urgent symptoms are not present, and there is no immediate need for interference. Elsewhere, however (*Brit. Med. Journal*, 1892, i. 1010), I have recorded a case of chronic simple pneumothorax in which aspiration was repeatedly performed in order to promote expansion of the collapsed lung, and ultimately with success, and there was at no time any sign of inflammation of the pleura.

DISEASES OF THE NERVOUS SYSTEM, INCLUDING INSANITY.

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IN the following *résumé* of the articles published during the year, special attention may be drawn to the researches on the exact uses of the more recently discovered hypnotics, including much excellent work that has emanated from asylums for the insane. The cure of tetanus by injections of tetanus antitoxin and by carbolic acid has come specially into prominence. The proposed method of treating nervous disease by injections of testicular fluid and of spermin has not seemed to produce such marvellous effects as was, curiously enough, expected of it by a few observers.

The various subjects will be considered in the following order :—

- I. The Treatment of Insomnia.
- II. The Relief of Pain, and the Treatment of Headache.
- III. The Treatment of Epilepsy.
- IV. The Treatment of Chorea.
- V. The Treatment of Tetanus and Muscular Spasm.
- VI. The *Ætiology* and Treatment of Locomotor Ataxia.
- VII. The Treatment of Neurasthenia.
- VIII. Hypnotism and Electricity.
- IX. The Treatment of Drug Cravings.
- X. The Treatment of Insanity.
- XI. Special methods of Treatment in Nervous Disease.

I.—THE TREATMENT OF INSOMNIA.

I have to record no addition to the already long list of hypnotics. Certain of the comparatively recent drugs, such as ural, urethane, and amylene hydrate, seem to find little favour, whereas others such as chloralamide, sulphonal and paraldehyde are constantly

found useful. Indeed, chloralamide is probably the best hypnotic that has been introduced for many years, and I have used it in doses of 30 or 40 grains in many forms of insomnia with the greatest success. If pain is present there is unfortunately no good hypnotic except opium or its derivatives, unless, indeed, a dose of antipyrin proves useful. As regards sulphonal, though a good sleep producer in the slighter forms of insomnia, yet its accompanying bad effects must always be remembered. I have seen in a lady 20 grains only of this drug given in divided doses produce the most profound ataxia, and this before (and not after) sleep had come on. Papers on hypnotics as used in asylums will be found under the heading of Insanity. (See pp. 97-101.)

1. General observations.

Surzycki (*Centralbl. für Klin. Medic.*, 1891) says that one of the things which is much to be deprecated in giving hypnotics is the method adopted in public institutions for nervous and mental diseases, of making up a sleeping draught that is to be administered to all patients alike, without reference to the class of case or the individuality of the patient. He has found that for hospital work sulphonal answers better than any other hypnotic for continuous administration in the insomnia of neurasthenia, hysteria, and the chronic neuroses.

When the sleeplessness is due to hallucinations, uncomfortable sensations, etc., amylene hydrate is far superior to any hypnotic the author has ever used. He has observed its action in a case of tubercular meningitis, where the sleep produced was refreshing and strengthening; he considers the drug especially valuable in irritative conditions of the brain. It can be given fearlessly without regard to either heart or lung disease. As an anodyne the remedy has no effect. He thinks the action of urethane, hypnone, and cannabin tannate is uncertain.

2. Urethane, sulphonal, and paraldehyde compared.

T. Sydney Short (*Birm. Med. Rev.*, July, 1891) gives the following summary of the action of urethane, sulphonal, and paraldehyde from a study of twenty-six cases. Age or sex does not in any way affect the action of these drugs; they have little effect on sleeplessness due to pain. Five out of seven cases of heart disease were greatly relieved. In bronchitis with cardiac failure they gave good or fair nights, and will probably prove most useful in such cases where opium is contra-indicated. In convalescence after pneumonia and enteric fever all these drugs were of great service, and after the first good sleep no further dose was required; the bad habit of not sleeping being apparently broken. Both

urethane and paraldehyde have probably a more rapid action than sulphonal, although on five occasions sulphonal in half-drachm doses produced sleep in fifteen minutes; on two occasions, however, sleep did not ensue for six or seven hours, and in several cases the sleep seemed better the night after than on the occasion of the first dose, even when only one dose was given. If the patient had been talking much in a disturbed sleep for several nights before giving the sulphonal, the sleep following seemed more likely to be accompanied by occasional wandering than when the drug had been given for complete absence of sleep. Slight wandering was more likely to occur after sulphonal than after the other drugs, and it stupefied the patient more than paraldehyde and certainly more than urethane. In one case after taking 30 grains of sulphonal the patient seemed inclined to wander and talk nonsense before he went to sleep at all. In nearly every case in which any effect was produced, drowsiness ensued the morning following, and this feeling was most marked after sulphonal.

Slight headache was produced in a fair proportion of cases and some giddiness in a few only; but following moderate doses no really disagreeable consequences were experienced. In one case a skin eruption appeared after paraldehyde and after sulphonal, and in another after sulphonal only. No noticeable effects were produced on the respiration, circulation, or appetite, and no case of cyanosis was seen.

3. Chloralamide.

H. C. Wood and D. Cerna (*Therap. Gaz.*, Nov., 1891) have experimented with chloralamide with the following results. On dogs:—
1. It has a slight local influence and in large doses tends to produce diarrhœa. 2. It induces sleep by its action on the cerebral cortex, having but slight influence on other parts of the nervous system of voluntary life; it is, however, a feeble spinal depressant. 3. It has a powerful influence on respiration, in moderate doses, increasing its rate and also the amount of air breathed; in toxic doses, however, death is brought about by paralysis of respiration. 4. It has but slight influence on the circulation save in toxic doses which reduce arterial pressure by direct action, either on the heart or the vessels. Having but little action on the heart chloralamide should be valuable as a sleep producer when that organ is feeble. Its respiratory stimulant effect should fit it for employment in nervous exhaustion.

From Wood's own experience the drug seems to be slower and somewhat less short in its action than chloral; it rarely produces unpleasant after-effects, but slight headache may follow its use.

According to Hagen and Hüfler chloralamide is especially valuable in cardiac asthma, and this seems to agree with Wood and Cerna's experimental conclusions.

Piccini (*Rif. Med.*, July 8, 1892) has also experimented with chloralamide on guinea-pigs, rabbits, and dogs, and has found that besides being not easily soluble it is less rapid and less effective in action than chloral hydrate, but is less injurious than the latter. In frogs, up to a maximum dose of .03 gramme it diminishes the electrical reaction of muscle, while in guinea-pigs and rabbits in proportion to the dose it slows the respiration, reduces the temperature by two degrees, and weakens the reflexes. Sleep is induced in fifteen minutes when the drug is administered hypodermically, and in about an hour if given by the mouth. It has no irritating action on the alimentary tract. In dogs, up to 1 grain or even more it increases diuresis, and diminishes the electrical reaction of muscles as also that of the cortex, sub-cortical region, and internal capsule. A few milligrammes of strychnine sulphate completely restore the diminished excitability. In man no hypnotic effect was produced by doses up to 30 grains in the daytime; in only two cases a very slight effect was produced by 37 grains. The action of the drug was more constant in doses of 45 grains, but even then the sleep was short and light. No bad effects were noticed except in one case, where marked vertigo was produced.

Clinical observations made in conjunction with Capriati on twenty-two cases and in doses of 22 to 45 grains gave the following results:—1. A short though somewhat tardy hypnotic effect in affections not accompanied by great restlessness. 2. It was most useful in cases of melancholia, on which the drug seems to have a favourable effect. 3. In cases in which there was great restlessness the sedative effect could not be obtained unless the patients were isolated. 4. The effect of the drug was good in cases of idiocy with hallucinations, in quiet paranoia and acute dementia, but it often failed in mania and in progressive paralysis. Sphygmographic tracings showed that when the drug was given in doses of 45 grains the radial pulse became fuller, while the carotid became smaller; when the patient was awake these conditions were reversed.

4. Chloralamide and sulphonal compared.

Joseph Collins (*Journal Nerv. and Ment. Dis.*, p. 534, July, 1892) concludes:—1. Chloralamide is a safe and one of the most reliable hypnotics. 2. It is not ordinarily followed by disturbing after-symptoms. 3. It is especially valuable as a hypnotic where pain is a prominent factor, but only if the pain

is slight. 4. In cases of insomnia where there is excessive activity of the brain, it is also useful. 5. On account of its stimulating activity on the respiratory function it is the hypnotic *par excellence* in nervous exhaustion associated with an asthenic condition of respiration and complex symptoms indirectly dependent on this, brought about by defective oxidation and the formation of unstable chemical compounds in the system. 6. On account of its very slight action in depressing the circulation it can be given in diseases associated with a weak heart with greater safety than most of the other hypnotics, not excepting chloral itself. 7. It is conveniently administered in shape of an elixir, which overcomes the need of dissolving it. 8. The dose is from 20 to 60 grains administered one hour before sleep is desired, and this should not be repeated within two hours, for occasionally the action of the drug is delayed.

In contrast with sulphonal there is much to be said in favour of each. Sulphonal is also an excellent hypnotic, and has, as is noticed by **Francisco** (*Annali di Neorologi*, Fas. ii., 1891), when taken in 40-grain doses, an action in strengthening the systole of the heart, and increasing the tone of the vessels in general. But this action on the vessels is not continuous, and after a variable length of time it is followed by the dilatation and lessening of the elasticity of the vessels, first of the cerebral and then of the peripheral arteries. And here, probably, is the explanation of the tendency for sulphonal sleep to go over into the next day, when it loses some of the characters of natural and tranquil sleep, which are attendants of the sleep produced by smaller doses. Sulphonal, when given in moderate doses, however, does not cause any injurious effects on the circulation, respiration, appetite, digestion, temperature, or on the general health. Occasionally, but very rarely, a sulphonal habit is said to be established.

In comparing chloralamide and sulphonal where we wish to get very rapid action, we can probably do so more efficaciously by the use of sulphonal dissolved in boiling water, and taken as hot as possible; the drug in this way becoming absorbed, and sleep frequently occurring in from fifteen to twenty minutes. In conditions where chloral is indicated, but some inconvenient symptoms contra-indicate its use, such as weak heart and respiration, as in the asthenic stage of acute disease, or in diseases of the heart and lungs, chloralamide can be substituted with safety, and with good results.

E. M. Sympson (*Practitioner*, October, 1891) finds that sulphonal can be given in a much smaller dose than chloralamide, to produce the same effect, whilst chloralamide acts more speedily, is more

readily dissolved, and is followed neither by delayed sleep nor mental confusion and dulness, as noticed after sulphonal.

In insomnia and delirium of acute fevers, such as influenza, in pneumonia and pleurisy, chloralamide has a very satisfactory effect, and is in ordinary limits safe. In the restlessness tending to delirium in children he found it useful; in nervous insomnia, from hard work, worry, and anxiety, 30 to 40 grains is almost certain to be followed by refreshing sleep. In mental disease sulphonal is perhaps still more useful. Chloralamide is better than paraldehyde in lung trouble, since it does not provoke cough or disturb the stomach, as the latter drug is wont to do. In delirium tremens, especially in the stage preceding an acute outbreak, it is of great value. During an attack it can be used freely without fear of prejudicial action on the heart. Patients do not get accustomed to it, and so increasing doses are not required. The author gives it with a little hydrochloric acid and syrup. He has generally found 30 grains for adult men, and 20 grains for women, a sufficient quantity.

5. Toxic effects of chloralamide.

G. E. Alford (*Brit. Med. Journal*, 1892, vol. ii., p. 639) records a case in which unpleasant effects followed upon the administration of chloralamide, 30 grains dissolved in spirit. Within five minutes there came on a feeling of stupefaction, with staggering gait, followed in a few more minutes by incoherent speech, delusions, faintness, and semi-coma. Within half an hour the patient (a woman) fell into a deep sleep, which lasted for eight hours. On waking she was unrefreshed, and had a severe headache. Just before sleep ensued, and about twenty minutes after taking the drug, there was violent purging, but no actual vomiting.

[This is, so far as I am aware, the only recorded case of bad effects from a moderate dose of chloralamide.—E. S. R.]

6. Toxic effects produced by sulphonal.

Camillo Fürst (*Internat. Rundschau*, Nos. 48 and 49) has noted, after sulphonal has been taken, twitching of the muscles, nausea, vomiting, vertigo, fainting attacks, tinnitus, chilly sensations, paresis, ataxia, diminished pupil reaction, rarely diarrhœa, constipation, ischuria or anuria, lowered temperature, cardiac weakness, impairment of respiration, cutaneous eruptions, hallucinations and amaurosis. In spite of all these symptoms attributed with more or less reason to sulphonal, in single doses it is devoid of danger, and in daily use for long periods of time it is harmless, but the moment that symptoms of kidney derangement arise, or there is diminished peristalsis, repeated doses, or even its daily use, are absolutely contra-indicated.

Neisser (*Berlin. Med. Wochenschr.*, May 21, 1891) relates the case of a person who took a tablespoonful of sulphonal. He slept four days and nights, then awakened and slept for a day and a half longer, feeling dizzy on awakening. Another patient, aged 15 years, took over 3 ounces, and was totally unconscious for five days, recovering completely in eight days. He became unconscious about one hour after taking the drug, and was made to vomit six hours afterwards. The drug is, of course, very slowly soluble in the gastric juice, only 1 in 200 at the body temperature (Kast), and is moreover rapidly excreted with the urine, where it can be detected. The pulse was 96, and extremely variable, the pupils were moderately dilated. A pale-red peculiar rash appeared on both wrists, and there was great dizziness on awakening, but practically no other symptoms.

7. Somnal or ethyl chloral urethane.

O. M. Myers (*New York Medic. Record*, March 12, 1892) speaks highly of the hypnotic effects of somnal, as follows:—1. Locally it is a non-irritant, but stimulates the gastric mucous membrane, and probably increases secretion; applied locally to the frog's heart it paralyzes. 2. In therapeutic doses it has no effect on the heart. Toxic doses depress the heart (*a*) by direct action on the heart muscle; (*b*) by stimulating the cardio-inhibitory centre. 3. Therapeutic doses do not affect the pulse-rate, and produce only a very slight transitory rise of arterial tension. Toxic doses rapidly reduce both the pulse-rate and blood pressure. 4. Ordinary doses produce a full, slow respiration; toxic doses make the respiration rapid, shallow, and irregular. 5. Sleep is produced by therapeutic doses without perceptibly affecting any other part of the system; somnal, therefore, seems to act directly and primarily on the cerebrum. Thus the drug is particularly valuable in sleeplessness mainly of nervous origin, and in that occurring during convalescence from acute diseases. It is less trustworthy in the insomnia due to pain or syphilis, and has apparently no influence over that due to acute inflammatory conditions. In whooping-cough, asthma, nervous cough, and chorea, however, it possesses decided sedative properties.

8. Paraldehyde poisoning.

Mackenzie (*Brit. Med. Journal*, Dec. 12, 1891) had a patient who had taken by mistake $3\frac{1}{2}$ ounces of paraldehyde. She recovered consciousness in thirty hours, but it was not until forty-one hours had elapsed from the time of taking the drug that she could understand and reply to simple questions. This is a striking instance of the safety of paraldehyde as a hypnotic.

9. The abuse of hypnotics.

John B. Chapin (*Americ. Journal of Insanity*, vol. xlviii., p. 202, and *Intern. Journal of Medic. Scien.*, vol. ciii., No. 2, Feb., 1892) reports seven cases admitted to the asylum as insane, in which the excessive amount of hypnotics taken under medical advice was the important factor in accounting for their condition. The symptoms were hallucinations, restlessness, motor disturbances, fear of impending calamity, manifest constitutional and sensory disturbances, suicidal tendencies, and delusions. The physical signs were sluggish and dilated pupils, diminished mental reflexes, feeble heart-beat, flabby coated tongue, and tumid abdomen. In hospital practice the use of hypnotics is becoming less each year, and private practice should follow that example. However, the increasing number of the insane cared for at home leads to more extended use of hypnotics, with great temptation to increase the dose when violent symptoms arise.

II.—THE RELIEF OF PAIN AND THE TREATMENT OF HEADACHE.

For the relief of pain exalgin has become very popular, but it must be remembered that toxic effects may easily supervene; larger doses than 2 or 3 grains should therefore never be given at first. Antipyrin has in my hands always proved a safe remedy, and in spite of an idea held by some that it is a dangerous drug, I find no cases reported of toxic effects produced by it. In some patients, however, it seems to have no power of relieving headache, and then phenacetin may be tried, a drug which is most useful in many cases of pain and yet which has hardly been mentioned in the literature of the past year. A simple remedy for the headache of anæmia will be found in ordering the patient to lie down with the head low and applying a sponge, wrung out with very hot water, to the head. It is, of course, an absolute essential in the treatment of all pain that the cause should if possible be discovered, and not merely the symptom treated.

A.—THE GENERAL TREATMENT OF PHYSICAL PAIN.

Hayem (*Internat. Klin. Rundschau*, 1892) contends that to intelligently treat pain the varieties must be understood, and classifies pain as follows:—Class 1, treated according to the intensity; 2, according to the locality; 3, the course of the pain

as to periodicity, duration, etc. ; 4, the age of the case. In very painful cases with very frequent paroxysms, chloroform and morphine cannot be constantly employed ; in such cases he recommends quinine, antifebrin, and exalgin internally, and hypodermic injections of aconitia. When the pain is local, say in the extremities, he uses the refrigeration of the part by chlormethyl spray ; if the condition is one of congestion scarification is good practice. The topical application of a sedative, such as morphine, veratrine, camphor, or menthol, is often excellent. In hemicrania due to indigestion, antipyrin or phenacetin generally relieves. The opium preparations, alone or combined with cocain, are specially indicated in "smarting" pain occurring in neuroses of the intestinal tract. So-called rheumatic neuralgia is best controlled by quinine and salicylate of soda.

B.—EXTERNAL APPLICATIONS.

Chlormethyl spray.

Steiner (*Deutsch. Med. Wochenschr.*, 1891, and *Journ. of Nerv. and Ment. Dis.*, Nov., 1891) states that this substance, CH_3Cl , or monochlormethane, originally a gas, becomes fluid at a pressure of four atmospheres. It is allowed to escape as a thick cloud against the painful part, which becomes cold. Care must be taken, as gangrene has been known to follow. It lessens the excitability of the sensory nerves, and Steiner says it may be used in combination with massage and electricity. The application is made daily. He has used it in sciatica, traumatic neuroses, pruritus vulvæ, and in trigeminal neuralgia.

C.—INTERNAL REMEDIES.

1. Antinervin (salicyl bromanilide).

This substance is prepared by the interaction of salicylic acid, bromine, and acetanilide (antifebrin). It is a crystalline solid, insoluble in cold but soluble in hot water, alcohol, and ether, and has a slightly acid but not disagreeable taste. It has been tried clinically by **Bradford** of Philadelphia, **Woodbury** (*Med. Times and Register*, April 25, 1891), and more recently by **De Filippi** (*Rif. Med.*, No. 201, 1891). While these observers differ as to the exact chemical constitution of the drug, they are agreed as to its utility in a variety of conditions, and especially in cases of articular rheumatism and neuralgia. **G. Laurenti** (*Gazz. degli Ospitali*, March 17, 1892) gives his own personal experience with the substance, and comes to the following conclusions:—1. It can be used with advantage in all forms of abnormal excitement

of the nervous system, whether to subdue neuralgia or as a general nervous sedative; 2. In rheumatism it may be used and seems undoubtedly indicated as a drug comprising in itself anti-rheumatic and analgesic properties; 3. Its low price and feeble toxicity, together with the evidence as above given, render it a useful addition to our list of remedies.

2. Bromamide.

Caille (*New York Med. Journal*, Feb. 20, 1892) has used this substance, which is a bromine compound of the aniline group, containing 75 per cent. of bromine. It is nearly odourless and tasteless, and has been tried in enteric fever, rheumatism, nephritis, and neuralgia. It reduces temperature without excessive sweating, and has no unpleasant effects on digestion. It is especially serviceable in various forms of neuralgia in doses of 10 to 15 grains several times a day, in capsule or wafer, placed on tongue, or suspended in fluid. In several cases lancinating abdominal pains occurred after its use, but Caille does not think this was due to the drug.

3. Exalgin.

(a) Physiological action.

A. P. Morozoff, of Professor S. A. Popoff's laboratory (*Inaugur. dissertat.*, St. Petersburg, 1892), has studied the physiological action of exalgin on frogs and dogs with the following results.

A. On frogs. 1. Doses under 0.002 grm. have no effect whatever, a minimum lethal dose being about 0.018 grm. 2. Small and medium doses retard, and large ones arrest, respiration, the effect being dependent upon a direct action on the respiratory centres. 3. The drug inhibits voluntary movements through its direct action on the brain. 4. It weakens, and in large doses totally inhibits, reflex action through its action on the spinal cord and peripheral ends of the sensory nerves. 5. Large doses retard and 0.018 grm. doses arrest the heart's action, the drug inhibiting the neuro-muscular cardiac apparatus.

B. On dogs. 1. Internal doses under 0.002 grm. per kilo. of the animal's weight have no effect. In a dose of 0.01 grm. per kilo. exalgin causes very marked toxic symptoms. An intravenous injection of 0.2 grm. per kilo. kills the animal. 2. The drug quickens the respiratory centre. 3. It first retards and afterwards accelerates the heart's action through a direct influence on the cardiac ganglia. 4. It causes a temporary rise of arterial tension by stimulating the vaso-motor centres. 5. It acts on the whole central nervous system, causing convulsions, vomiting, incontinence of urine and fæces, dilatation of the pupils, etc. 6. On subcutaneous injection, even in such small doses as 0.006 grm., it produces local

anæsthesia, which is dependent on paralysis of the peripheral endings of the sensory nerves. 7. It causes a temporary fall of temperature amounting to 2° or 2.5° C., this being observed even after very small doses (0.002 grm. per kilo.) and probably being due to a decreased oxidation of the blood. The author believes that exalgin has some future as a nervine, but none as an antipyretic.

(b) *Poisonous effects.*

G. Veitch Gilray (*Brit. Med. Journal*, 1892, vol. i., p. 384) relates a case where $17\frac{1}{2}$ grains had been given by mistake. The patient, a woman, immediately became unconscious and convulsed with profuse perspiration, the pulse weak, rapid, and intermittent, and the pupils dilated. He gave hypodermically $\frac{1}{10}$ grain hydrochlorate of apomorphia and $\frac{1}{100}$ grain digitalin, and copious vomiting ensued. In half an hour there was some slight improvement, and in an hour and a half the patient could be roused, and digitalis and ammonia were given and mustard poultices were applied over the heart, and recovery ensued.

(c) *Antineuralgic effects.*

Herschell (*Deutsch. Medic. Zeitung*, 1891, and *Journal of Nerv. and Ment. Dis.*, New York, Nov., 1891) has found exalgin useful in the pains of tabes, which were lessened after a second dose, and in some cases remained absent for a long period. In a case of tabes with gastric crises and vomiting, 9 grains of the drug given half an hour before the seizures gave permanent relief. In trigeminal neuralgia not only was there relief but there was no recurrence of the pain for three or four months at a time. In sciatica several severe cases were cured in two days by 3 grains of exalgin three times daily; the pain of herpes zoster was relieved after a second dose.

F. Sinclair (*Brit. Med. Journal*, 1891) is of opinion that exalgin is an excellent analgesic, prompt and safe in action, and could always be relied upon. By giving it in doses of from $\frac{1}{2}$ to 1 grain it was free from danger. If pain was not relieved the dose should be repeated in half an hour; four doses consecutively were seldom required. It was found chiefly useful in neurotic patients with pains of functional or dietetic causes; pain of an organic or mechanical nature was not relieved. It was good also in pains due to influenza and in angina pectoris.

Henry Semple (*Brit. Med. Journal* 1890,) gave from 2 to $4\frac{1}{2}$ grains twice daily for hysterical headache, with the result that pain was absent for eight hours at a time. On recurrence of the headache two doses were given in quick succession, and in fifteen minutes the patient seemed and said she was dying; the skin and fingers

were numb, there was nystagmus, numb feeling in the head, and a heavy sensation in the diaphragm, then vomiting and marked improvement, sleep following. Semple considers that doses greater than 2 grains are not safe.

Emile Désiré (*Journal Nerv. and Ment. Dis.*, Jan., 1892) has used exalgin at the Lariboisière Hospital. In every case the drug was given at two o'clock and repeated at four in the afternoon; in every case the initial dose was 4 grains, and this was the usual dose, but in some cases it was progressively increased to as much as, or even more than, 12 grains. It was tried in thirty-two cases of nearly every variety of pain, and of these thirty were relieved or cured. In one case the drug was not pushed, and in another the patient refused further treatment. In four cases of the bone pain of syphilis all were cured; some of these were very old and had resisted all other treatment. All the cases were adults and were apyretic; in fact, a high temperature was considered a contra-indication. Vertigo was complained of in a few cases, but no change of dose was made for that cause; in one case the dose was even increased and the vertigo disappeared; these cases were cured. The author does not mention the use of exalgin in traumatic pain, but other observers have found it of great service in this direction.

(d) *Employment in infants.*

Moncorvo (*Bull. Génér. de Thérap.*, May, 1891) concludes as follows:—1. The great activity of exalgin as an analgesic has been without exception well demonstrated in twenty-one cases of diverse pain in children. 2. In children complete tolerance has been established and in no case was there any appearance of disagreeable results. 3. The initial dose should be $\frac{3}{4}$ grain a day and rise progressively to $4\frac{1}{2}$ grains a day. 4. The drug may be given in any acceptable way, solution, capsule, or placed on the base of the tongue and washed down by a little wine and water. 5. Exalgin surpasses antipyrin in activity, even in cases where the dose of the latter is five times as great. 6. The value of the drug as a nervine seems probable from the results obtained in one case of chorea.

4. Methyl blue.

Immerwahr (*Deut. Medic. Wochenschr.*, No. 41, p. 1147, 1891) has prescribed this drug in the dose of $\frac{1}{15}$ to $\frac{1}{5}$ grain three times a day, but quite unsuccessfully, in six cases of sciatica. In two cases of trigeminal neuralgia the treatment was followed by cure. Similar success was obtained in angio-spastic migraine. In several cases of headache, purely nervous or secondary to alcoholic excess, a dose of $\frac{1}{15}$ grain cured in one hour. Two patients with zona

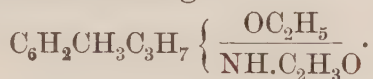
were rapidly relieved; the pains of rheumatism were calmed in twenty-four hours in one case.

5. Phenocollum hydrochoricum.

This new drug, though especially recommended for the pains of rheumatism, has in several cases been of use in neuralgia. Thus **Cohnheim** (*Therap. Monatsch.*, Jan., 1892) has used it with good results in neuralgia in doses of 3 grains thrice daily; it is especially useful in neuralgia after influenza, but is of no use in hysteria. No collapse follows its administration.

6. Thymacetin.

Jolly (at a meeting of the "Berlin Gesellsch. für Psychiatrie und Nervenheilk.," Dec. 14, 1891) gave an account of his experiments with thymacetin, a substance first prepared by Hoffinan of Leipzig, which bears the same relation to thymol that phenacetin bears to phenol, its formula being



It is a white crystalline powder soluble in water. In 30-grain doses it does not cause toxic symptoms in dogs. He found that it had some effect as an analgesic. In seven cases of true migraine it was, however, of no service, although the dose was progressively increased from 4 grains to 15 grains; but in other forms of headache it gave just as much relief as phenacetin. It had also some effect as a hypnotic, and was given in twenty-six cases of insomnia, in sixteen inducing quiet sleep, in the remaining ten the effect being nil. In patients who were in the habit of taking chloral, thymacetin appeared to produce the same effect as that drug. The average dose required to induce sleep was 7 grains. Among the secondary effects induced were acceleration of the pulse, the patients at the same time complaining of fulness, beating and noises in the head. **Jolly** thinks the drug should be tried further.

7. Treatment of neuralgia by purgatives.

Kisch (*Therapeut. Monatsheft.*, No. 4, 1892) considers that it cannot be often enough emphasised how important a factor is the systematic use of purgatives in the treatment of neuralgia. Were the attention directed to the ætiological relationships in which disturbances of the gastric and intestinal functions, and more especially habitual constipation, stand to neuroses of the most varied kind, one would be struck how frequently they are to be regarded as causal agents and how treatment directed to this point leads to satisfactory results.

Recently **Gussenbauer** has remarked on the relationship of trigeminal neuralgia to habitual constipation, and has published a series of cases where neuralgia was cured by treatment adopted

with a view to empty the bowel. Kisch has likewise put upon record cases of hemicrania, sciatica, and abdominal, ovarian, and trigeminal neuralgia and cardiac neuroses which had long resisted treatment, and yielded to the purgative action of Glauber's salt.

Gussenbauer's method consists in the use of cold water enemata, and in obstinate cases the introduction of an elastic intestinal tube. The action was supplemented by continuous moist applications to the abdomen, cold ablutions to the lower part, massage, cold sponging of the whole body, and vapour baths with cold douches. Easily digested food was given, and in obstinate cases a milk diet was employed with caution. According to the season of the year, walking exercise in the garden was permitted. This course was carried out daily without interruption for two, four, or six weeks. Kisch has largely made use of the sulphate of soda springs at Marienbad, combined with the application of wet compresses to the lower part of the abdomen. At the same time the patient was put on a carefully regulated diet.

D.—THE TREATMENT OF HEADACHE.

Numerous references to the treatment of headache will be found in the preceding paragraphs. The following articles relate only to headaches.

1. General.

C. W. Suckling (*Birming. Medic. Rev.*, p. 65, Aug., 1891) after dealing with the varieties of headache, directs attention to the indications for the treatment of migraine. Care must be taken to place the patient during the intervals of the attacks under favourable conditions. Tobacco, alcohol, and especially mental worry must be forbidden, hot and crowded rooms must be shunned, errors of refraction should be corrected, and the patient's diet strictly regulated. One pill twice a day continuously containing Extr. cannab. indic. $\frac{1}{6}$ grain, zinc. phosphid. $\frac{1}{10}$ grain, arsenic. $\frac{1}{30}$ grain may often give relief. The severity and number of the attacks are often effectually diminished by liq. trinitrinæ \mathfrak{m} i two or three times daily after meals, continuously. For the actual attacks rest in bed in a dark room may be necessary, and relief may be secured by a draught every hour consisting of antipyrin grain x, ammon. bromid. grain x, spr. ammon. co. \mathfrak{m} xx. The dyspeptic headache is usually relieved by blue pill and euonymin.

Savigny (*Rev. de Thérap. Médico-Chirurg.*, 1892, No. 4, p. 94) says the ætiology is an important consideration in the treatment of migraine. Those predisposed to this disease are the neuropathics, gouty, rheumatics, diabetics, and anæmics. Constipation is an important adjuvant. The use of narcotics, such as morphine,

hypodermically is objectionable in that it causes vomiting, is only palliative not curative, and increases the constipation. Chloral only fulfils a symptomatic indication. The analgesics, salicylic acid, antipyrin, exalgin, acetanilide, and, indeed, quinine yield cures, but often relapse quickly follows.

Haig believing that in gouty subjects there is a connection between migraine and an increased excretion of uric acid uses large doses of citric and nitro-muriatic acid. He believes that antipyrin acts in the same way. A nitrogenous diet, meat, cheese, and beer should be forbidden. By its chemical acid the good effects of sodium chloride are explained (**Batom**, **Nothnagel**, **Rabad**). This, however, has been useless if there exists a gastralgia. The treatment between the attacks may be the reduction of obesity (method of **Oertel**), hydrotherapy, total rest both physical and intellectual before a cold bath, with physical exercise afterwards, or if the bath is a hot one, followed by rest (procedure of **Pelezeus**). For the attack itself **Dunn** has used cocain hypodermically, although it often causes insomnia, agitation, exaggerated reflexes, rapid pulse and palpitation. **Rossbach** believes in the value of local massage; **Nefel** uses hot water to increase transpiration, muscular exercise, improvement of the general condition.

Morris Lewis uses tr. eucalypti $\text{m} \times$ four to six times daily, while **Gill Wylie** has prescribed with success 1 grain of ox-gall and m i of essence of gaultheria six times a day. The author employs caffen and ammonium bromide in peppermint water every two hours during the attack, recommending in addition electricity, either static or galvanic, with general faradisation.

2. Antipyrin in headache.

Graeme M. Hammond (*Journal of Nerv. and Ment. Dis.*, April, 1892, p. 282) says that antipyrin may or may not be a suitable remedy in migraine. In migraine with vasomotor spasm such remedies as glonoin, amyl nitrite, alcohol, or quinine, frequently relieve the pain or arrest the attack; and such drugs as bromides, which contract the vessels, are either ineffective or make the pain worse. Antipyrin has the power of diminishing the intracranial circulation, and in many cases of migraine with spasm of the vessels this drug is often of no use, or is positively harmful. It is, however, an excellent remedy in the angio-paralytic variety. It should be given as soon after the onset of the attack as possible, and the patient should be instructed to keep as quiet as possible. There is little to fear of its depressing the heart's action. If pain has increased steadily before the drug has been given it may be useless. The analgesic effect of antipyrin is limited because the quantity given at one time must be limited, but with morphine

the amount given may always be sufficient to relieve the pain, as this effect is produced long before the hypnotic effect comes on. The advantages of antipyrin over morphine for the relief of moderate pain are that it produces no stomach disturbances, derangements of digestion, nor constipation, nor leads to the formation of a habit. Also in pure sick headache from irritation of the stomach due to inordinate use of food or alcohol, or from the direct effect of blood charged with poisonous substances on the brain such as uric acid, antipyrin is very useful. If in these cases of sick headache the heart is at all irregular or sluggish then digitalis should also be given, or some other cardiac stimulant, except alcohol. Antipyrin is also very good in various forms of neuralgia, either of malarial or other cause. Antipyrin owes its analgesic properties to its effect on the sensory cells of the central nervous system, diminishing their irritability without completely abolishing it.

3. Salipyrin in migraine.

Argo (*Therap. Monatsheft.*, May, 1892) says that he has found salipyrin of much value in several cases of hemicrania, in headache after alcoholic excess, in two cases of chronic rheumatism and in one of chronic gout, and also in influenza. It possesses properties that make it at times preferable either to salicylic acid or antipyrin. The author uses it in single doses of 15 grains, the daily amount being 45 grains.

4. Headache of gastric origin.

Westphalen (*Berlin. Klin. Wochenschr.*, No. 37, 1891) thinks that gastric headaches are due to toxic substances in the stomach. He further states that these ptomaines or toxenes are only capable of exerting their detrimental influence when there is a deficiency of free mineral acid in the stomach. These headaches are often accompanied by various skin eruptions. The treatment he advises is to give 15 minims of dilute hydrochloric acid fifteen minutes after food.

III.—THE TREATMENT OF EPILEPSY.

It is probable that the treatment of epilepsy by the careful and continued administration of bromides in various forms still remains the best method. We would direct attention to the use of the pure strontium bromide as one which promises well. When bromides alone fail they should be tried in combination with antipyrin or antifebrin, and if this fails, borax carefully administered may be used. Further trials of amylene hydrate, antirabic

injections, hydrastinin, and pilocarpin have shown that they are practically useless in the treatment of epilepsy.

1. Ammonium bromide and antipyrin.

Charles J. Potts (*Philad. Univ. Medic. Mag.*, Feb., 1892) in a further report on this combination cites thirty cases so treated since his first report in October, 1890. The advantages claimed for the method are, firstly, that it exercises a most powerful influence in decreasing the number of attacks. In the majority of the cases treated the average number of seizures had either been stationary for some time, or was increasing, and they had previously been treated with other drugs. Secondly, when a seizure does occur it is of much less severity. Thirdly, while lessening the number and severity of the seizures, it does not do this at the expense of the remaining physical and mental health of the patient. The doses used were, of antipyrin 8 grains, ammonium bromide 20 grains; children in proportion.

2. Amylene hydrate.

Edwin Dunn (*Journal Ment. Scien.*, October, 1891) has given a trial to this remedy, recommended by P. Naecke, for epilepsy. He gave it to fourteen patients for twelve weeks; in half-drachm doses, three times daily, for the first four weeks, and for the remainder of the time four times daily. Twelve of the patients had been previously under treatment with bromide of potash. In three the number of fits was increased, in four the number diminished, and in three the number remained the same; two died in status epilepticus, one in the first week, the other in the twelfth. Of the two patients not previously treated, in one the drug had no effect, in the other the number of fits was diminished by one-third. During the early weeks of treatment there was a marked improvement in the mental state, but this was probably due to leaving off the bromide, for after the first month there was a marked tendency for the patients to pass into a condition of status epilepticus, and in no case ultimately was the mental condition of the patient improved. There was no change one way or the other in regard to bodily condition. He concludes that it was, perhaps, beneficial in some of the less severe cases, but that in the graver forms it was useless, and possesses no advantage over an ordinary bromide treatment.

3. Antifebrin and sulphonal.

Hinsdale (*Journal Nerv. and Ment. Dis.*, April, 1892) thinks that by using antifebrin alone he obtained better results in the lesser epilepsies in which bromides failed, than in the greater epilepsies. One case was reported in which bromides made the condition worse, while antifebrin kept the attacks down to such

a number as to make it possible for the patient to follow his vocation as a compositor. He took from 10 to 20 grains three times daily, and except for the appearance of slight cyanosis there was no evident disadvantage in its use. Nine other patients were temporarily treated by antifebrin, but eventually were compelled to return to bromides.

Sulphonal was used in a large number of cases, seven of which were reported as having been under treatment a sufficient length of time to form an estimate of its value. The dose employed was from 3 to 6 grains three times a day, and the period of treatment varied from one month to ten months. The results generally with sulphonal were variable. The dose for children was 3 or 4 grains, and for adults 6 or 8 grains three times a day. Frequently patients are made sleepy by sulphonal in these amounts, in which case only two doses daily were given. The best results from sulphonal are in those cases where bromides cause so much skin trouble or mental disorder that their quantity must be lessened or the drug altogether suspended. In the discussion that followed the above paper many well-known neurologists spoke favourably of the combination of antipyrin and antifebrin with bromides in the treatment of epilepsy.

4. Antirabic injections.

A. de Giovanni (*Rif. Med.*, July 12, 1892), struck with the report from Paris that an epileptic who had been submitted to Pasteur's antirabic treatment had been at the same time cured of epilepsy, tried a similar treatment in the following case, with very satisfactory results. The patient had been subject to fits for five years, and lately had had as many as five or six daily. She had besides attacks of mania, impairment of speech, limited intelligence, stupor, etc. The treatment adopted was the same as that for a case of rabies. Good effects were noticed on the second day of treatment, and the improvement went on steadily in all the symptoms, the convulsions ceased, the disposition and appearance of the patient improved, and it seemed likely that a permanent cure had been brought about.

[Was this not more probably a case of pure hysteria?—E. S. R.]

5. Borax.

Mairet, of Montpellier (*Progrès Méd.*, Oct. 10, 1892, p. 257), had thirty-one patients who had been under bromide treatment and then kept for some time without any drugs. He then gave borax for twelve to fifteen months. In five no improvement was noticed in spite of the doses being increased to half an ounce. In two, early toxic effects, and in two others weakness, stopped the

use of the drug. The remaining twenty-two improved markedly, and the average number of fits was reduced from thirteen to three per month. In three most successful cases the number of attacks had been thirteen, eight, and twelve monthly, and with borax no attacks occurred at all for twelve months out of fifteen months' treatment. On comparing the treatment without drugs and with bromides all but two had been worse after the bromides were stopped, but the average improvement from bromides was less than the average from borax. In four cases where borax had been of no service, bromides were useful. Mairét divides his cases into purely functional and into those with some chronic organic lesion; one case was hysterical, and another hereditary. Chronic organic changes were indicated by rushing forwards during the aura, atrophy of one side with athetosis or muscular contractions.

In a further paper (*Progrès Méd.*, Feb., 1892, p. 98) Mairét says, that although borax is very useful in epilepsy it may give rise to certain ill effects, chiefly digestive, such as nausea, salivation, loss of appetite, vomiting and diarrhœa, and skin affections. Sometimes loss of weight, œdema of the face and limbs, papular eruptions, almost always near the joints and accompanied by pruritus, may occur, and occasionally eczema, scarlatina-like eruptions followed by desquamation; or the rash may simulate measles. Slight conjunctivitis, falling off of the hair, and affections of the nails have been seen. It has, however, no benumbing or confusing influence on the intellect.

Careful feeding and an abundant supply of fresh air, and rest during the day for some hours, are necessary if there is any œdema; iron and quinine as tonics, and bismuth salicylate with naphthol if there is any diarrhœa. Arsenic, however, is not useful for the skin affections. The nauseous taste of borax may be disguised by syrup aurantii. The dose of borax should be at first 10 to 15 grains, and increased gradually to 40 grains in the day. It is best to give the drug as far as possible from meals, first thing in the morning and last thing at night; if a third dose, then in the middle of the night. If the administration is stopped the fits recur.

6. Administration of bromides with intestinal anti-sepsis.

Féré thinks that many of the unpleasant symptoms produced by large doses of bromides are due to intestinal sepsis, and recommends that they should be given with such drugs as naphthol or bismuth salicylate, using the following formula for the treatment of epilepsy: Potass. bromid. ζ iss, β -naphthol ζ i, sod.

salicyl. ʒss. Divide into three doses and give one dose three times a day. A similar addition is of use to prevent eczema and psoriasis from the administration of borax.

7. Hydrastinin.

V. G. Kiseleff (*Vratch.*, No. 20, 1892) experimenting on dogs and guinea-pigs, has found that intravenous injections of hydrastinin even in small doses (·04 gram. per kilo. in dogs) distinctly lowered the excitability of the brain cortex, and mitigated or prevented epileptic fits induced by absinthe. These observations induced him to try hydrastinin in six cases of epilepsy. The drug was given internally in an aqueous solution, from $\frac{1}{5}$ to $\frac{1}{2}$ grain per dose up to 1 or 2 grains per day. In four patients the fits decreased in two or three weeks both in frequency and in intensity, while in the remaining two cases the treatment was less efficacious. No unpleasant accessory effects were noticed.

F. Th. Gadzaicki also employed hydrastinin in epilepsy, but without result. The hydrastinin treatment of epilepsy, hydrophobia, and strychnine poisoning was first studied by P. J. Arkhangelsky (*St. Petersburg Inaugural Dissertation*, 1891, No. 59), whose experiments on animals showed that the alkaloid ($C_{11}H_{13}NO_3$) possessed anti-spasmodic properties.

8. Pilocarpin.

Féré (*Semaine Méd.*, May 18, 1892) reports that he has long since given up using injections of pilocarpin in epilepsy, as he found that, so far from subduing the attacks, it appeared sometimes to bring them on. One of his patients, who had not had a single seizure for several months, had four seizures in one day, almost immediately after an injection of the drug. Pilocarpin nitrate is also of no use in favouring the elimination of bromides in patients who have been for a long time under bromide treatment.

9. Strontium bromide.

An epitome of the treatment of epilepsy by this drug will be found in the *Journal of Nerv. and Ment. Diseases* (New York), April, 1892, p. 298.

Laborde, in a communication to the French Academy of Medicine, says this drug is not a poison, as had been supposed from its relation to Barium, but had a favourable influence on nutrition provided it is pure (Paraf-Javal salts). Germain Sée confirms these statements.

Constantin Paul gave 90 grains daily of strontium bromide to a young girl suffering from hysterio-epilepsy for two months with the disappearance of the attacks.

Dujardin Beaumetz says it has the undoubted advantage of

being better borne by the stomach than the other alkaline bromides. Strontium bromide when pure, as obtained by Paraf-Javal, is in crystalline needles, and is very soluble in water.

Ch. Féré, at a séance of the Soc. of Biology (Paris), Oct. 17, 1891, referred to the interesting case of a patient treated with 150 grains of potassium bromide daily in whom the cutaneous eruption persisted in spite of intestinal asepsis. This patient was given the same dose of strontium bromide (Paraf-Javal) and equally good effects were obtained without any undesirable symptoms. Intravenous injections in rabbits have shown that these animals support 85 grammes of strontium bromide as against 14 of potass. bromide, showing that the drug is six times better tolerated. Germain Sée says it may be taken in doses of 60 grains at each of the three daily meals, and thinks it will replace potass. bromide in the treatment of epilepsy (*Academ. de Médec.*, Oct., 1891).

Deny (*Sem. Méd.*, Aug. 10, 1892) between Dec. 1, 1891 and July 1, 1892, treated seven cases of epilepsy with strontium bromide, during which time the seven patients had in all two hundred and forty-six fits. During the corresponding period 1890 to 1891 the same patients had been treated with potassium bromide and had three hundred and thirty-one fits, being a difference of eighty-five fits in favour of the strontium treatment. Both drugs were given in exactly the same dose. Bromidism was never observed. One of the patients who derived most benefit from the strontium treatment ceased to suffer from attacks of mania to which he was previously subject after each fit. Deny therefore agrees with Féré in thinking strontium bromide a valuable aid to potassium bromide in the treatment of epilepsy, and even more effectual than the latter drug in diminishing the number of fits. **Vallon**, on the other hand, has had to discontinue strontium bromide in three cases as it seemed to make the seizures more frequent.

10. Sulphonal.

G. A. Bannatyne (*Bristol Med.-Chirur. Journal*, Dec., 1891) thinks that when the original cause of epilepsy has disappeared the fits may continue because the brain has become hyper-excitable and the convulsions may have determined secondary lesions often incurable. By suppressing the fits sulphonal can, if given in time, prevent the lesions, and where the cause is unknown or inaccessible to treatment it may still lessen the number and severity of the attacks. It should be given at bedtime in two separate doses of from 10 to 40 grains, but not pushed sufficiently far to produce languor during the day. The report of

eight cases, where the ordinary treatment had little or no effect but in which sulphonal caused a cessation of the fits so long as it was taken, or a great lessening in their number and severity, is given.

11. The dietetics of epilepsy.

John Merson (*Dietet. and Hygien. Gaz.*, March, 1892) records the results of a series of observations on twenty-four chronic epileptics, undertaken to determine the value of a nitrogenous and farinaceous diet in the treatment of this disease. Twelve of the patients were put on nitrogenous and the other twelve on farinaceous food, and this arrangement was continued for four weeks. At the end of this time those previously on nitrogenous diet were transferred to farinaceous and those on farinaceous to nitrogenous. This was continued for another period of four weeks, when the patients were allowed to resume their ordinary diet.

After assumption of the nitrogenous diet many of the patients became more dull and stupid, but changed for the better as soon as farinaceous food was adopted. Out of the twenty-four cases there was in fourteen a decided decrease in the number of fits during the period of farinaceous diet; the average number of seizures for the farinaceous period was 10·7 as compared with 28·3 for the nitrogenous period. Of the remaining ten cases four had the same number of fits under each diet. Merson believes that after making due allowance for the short period of observation and the limited number of cases observed there is still a certain indication that the actual number of fits is less under a farinaceous as compared with a nitrogenous diet.

12. The treatment of status epilepticus.

Kerning (*St. Petersburg Med. Wochenschr.*, 1891) has had successful results by giving subcutaneous injections of pilocarpin in conjunction with camphor in emulsion. Soon after administration the convulsions cease, the pulse becomes better, and the patient drops off into a sound sleep. If œdema of the lungs and collapse had come on it was too late to use the remedy, but it had been successful where the patients were in a state of coma.

IV.—THE TREATMENT OF CHOREA.

In considering the treatment of chorea it must always be remembered, as we have pointed out in previous years, that with good feeding and rest in bed most of the cases will recover, and therefore too much stress must not be laid on the apparent efficacy

of many new drugs. In tonics, arsenic and antipyrin, with fairly large doses of chloral for intense restlessness and excitement, we have the best routine drug treatment of the disease. Exalgin, though it seems to lessen the duration of the attack, appears to be peculiarly liable to produce bad symptoms, as will be seen by the cases reported. I think that such interference with the patient as massage and electricity in the early stages is much to be deprecated.

1. General treatment of chorea in the Paris hospitals.

Baudoin (*Semaine Médicale*, No. 13, 1892) has investigated the various treatments of chorea carried out in the Paris hospitals and summarises as follows:—

Germain Sée claims that there is no specific for chorea. He has, however, obtained his best results in ordinary cases with antipyrin and arsenic. If a rheumatic taint was present, he combined the antipyrin with salicylate of soda. In cardiac cases he recommends chloral and hydrotherapy, associated with heart remedies, together with potassium iodide, and especially the iodide of calcium. Sulphur baths are also recommended.

Gilbert Ballet abstains from all medication in the majority of cases, on the ground that the tendency to chorea is towards recovery. He absolutely discards antipyrin. In severe cases, arsenic or Fowler's solution may be given, from 6 to 10 drops daily. The tonics and iron are very beneficial in anæmic cases. In intense cases spraying the spine with ether may be useful. As to the bromides they are only indicated in cases complicated with psychical troubles. Good hygiene, nourishing food, absence of fatigue, exercise in the open air—these are the best agents to prescribe.

Auguste Voisin employs the iodide of potassium, up to 120 grains per day, together with douches twice daily. Gymnastics should be used and all intellectual work or excitement avoided. If the disease resist this treatment, he employs the oxide of zinc, with bromide of potassium. The oxide is given in doses of 3 grains per day in pills, as a maximum dose; and the bromide should not be administered beyond 60 grains daily. Each pill of the oxide should contain $\frac{1}{3}$ grain, and one may begin by giving two pills twice a day, increasing by $\frac{1}{3}$ grain per day until the maximum dose of 3 grains per day is reached. In young girls he adds extract of valerian. He claims that it is rare that chorea can resist this treatment methodically carried out.

Jules Simon employs rest in bed, and applies blisters to the upper part of the spine, hot friction and dry cups, hot air baths

given in bed every two days, and aconite or conium internally. After two weeks the patient may get up, and then the antipyrin treatment is begun, 16 to 18 grains daily for several weeks. After this, regular exercise with iron baths and gymnastics should be resorted to.

Déjérine considers special medication useless in children. He advises tonics, along with massage, salt baths, Swedish movements, and above all, good hygiene.

Joffroy lays considerable stress on rest and sleep in the mild cases, and gives chloral hydrate, 16 to 25 grains after each meal, to accomplish this. During waking hours all excitement, physical and mental fatigue should be avoided. In severe cases antipyrin is ineffective, and recourse must be had to the moist sheet, used twice daily.

Albert Robin has had the best success with antipyrin giving as much as 32 grains daily, divided in four equal parts with 4 grains of bicarbonate of soda added. After eight to ten days he substitutes the arseniate of soda for the antipyrin.

Raymond believes that there are only two efficacious remedies—antipyrin and chloral. Antifebrin has been used successfully in a few cases.

Luys uses, perhaps, the simplest treatment. His agents are “transfert” with rotatory mirrors.

Sevestre gives preference to antipyrin. He begins with 16 to 32 grains daily, and increases to 48 and 64 grains daily. At the same time he administers arsenic, either as Fowler's solution 6 to 12 drops daily, or as the arseniate of soda. It is necessary to avoid all excitement, and, if convenient, to isolate the patient.

Ollivier advises, in the first place, massage, and is well satisfied with the results obtained. He prescribes iron, arsenic, and hydrotherapy, according to the case in question.

D'Heilly insists upon hygiene, tonics, and prolonged sleep. In mild cases he prescribes arsenic, iron, bitter tonics, and baths. In severe cases he thinks antipyrin and chloral succeed best.

Legroux has had excellent results with antipyrin, and gives from 30 to 60 grains daily. In those cases associated with hysteria he administers the bromide of potassium, 30 to 60 grains daily and the cold shower bath.

2. Antipyrin.

Charles Laroux (*Rev. Mens. des Maladies de l'Enfance*, Aug., 1891, and *Therap. Gaz.*, Sept. 15, 1891) gives the record of sixty cases of chorea treated by antipyrin with the following summary. Of these sixty cases, in forty-one the result was satisfactory, in nineteen unfavourable. Of the forty-one cases, in nineteen the

average duration of treatment was twenty-one days, in seven favourable cases the duration was forty-three days, and in seven fairly satisfactory cases the disease lasted sixty-eight days, and the treatment forty-nine days. Nineteen cases were not influenced either on account of the absence of any effect of the antipyrin, from intolerance of the drug as shown by vomiting, diarrhoea, etc., or from the fact that eruptions were produced. Relapses were frequent, occurring thirty-six times out of sixty. The antipyrin was given in large doses of from 45 to 90 grains daily, according to the age; notwithstanding these large doses, children of from 6 to 15 years of age were able to sustain the drug for many weeks. Apart from the eruptions and transient digestive disorders, the author met with no case of severe poisoning, and even when the drug had to be suspended from its producing eruption or indigestion, after a short interval its use could be resumed without unfavourable effects. In no case was albuminuria produced.

3. Chloral.

Baskett (*Lancet*, 1892, No. 3,580, p. 796) reports a case of a girl 14 years of age, who was suffering from rheumatism accompanied with chorea. The attack was her first and was mainly on the right side. Improvement followed rest and the use of salicylate of soda, and afterwards Fowler's solution. She became, however, furiously excited with incessant movements. She was chloralised, the necessary amount daily being 100 grains, until complete recovery resulted.

4. Exalgin.

Löwenthal (*Berl. Klin. Wochenschr.*, Feb. 1, 1892) has treated thirty-five cases of chorea with exalgin, in single doses of 3 grains, and a daily amount not exceeding 15 grains. In some the attack was slight, in others severe; the former cases recovered quickly, but the latter required a longer time. Many of the cases came under treatment during the first two or three days of the attack, and they mostly recovered in eight days, while others coming in the second week were ill for five to six weeks. In a few cases the disease had already lasted for some months. The smallest total amount of exalgin used was 36 grains, the largest was over 3 ounces. The drug may thus be taken for some months in doses of 3 grains. It was particularly useful when there was much mental excitement. Among unpleasant effects, nausea was noted once, vomiting four times, and headache twice. Owing to giddiness it had to be given up once and arsenic substituted, when the chorea became worse, and the exalgin was again tried with good effect. Jaundice occurred three times, when the treatment was omitted and resumed in fourteen days; it is the first time

jaundice has been noticed after exalgin. In a very severe case of chorea in a girl aged 8 years there was marked cyanosis after twenty-six doses; arsenic was then given, the exalgin being resumed in fourteen days without any return of the cyanosis. Exalgin was beneficial in the majority of the cases, but a specific action cannot be attributed to it.

Dana (*Journal Nerv. and Ment. Dis.*, p. 525, July, 1892) says his routine treatment for chorea has been the use of arsenic or zinc, iron and quinine, cold baths, chloral at nights if needed, galvanism in chronic cases, rest and quiet as much as possible. As a rule these cases get well in ten to twelve weeks. But all cases do not respond to this treatment, and he has, therefore, also tried antipyrin, antifebrin, sulphonal, plenacetin, actæa racemosa, hyoscin, physostigmin, salicylates, and bromides. None of these drugs, however, have given really satisfactory results. He then tried exalgin, and has used it with good effect in sixteen cases, and thinks it is a specific. He also gave iron at the same time. The dose of exalgin was 2 grains in capsules thrice daily the first day, four times daily the second, five times daily the third. The drug should be given carefully, as its use may produce muscular prostration, acute anæmia, and cyanosis. It is of no use in chronic chorea, habit chorea, convulsive attacks, or chorea major.

V.—THE TREATMENT OF TETANUS AND MUSCULAR SPASM.

Purely as a result of bacteriological research, we seem at last to have obtained in the treatment of tetanus by tetanus antitoxin injections an almost certain cure for this fortunately rare disease. In the absence of the antitoxin, the method of Baccelli by injections of carbolic acid seems a fairly trustworthy one.

A.—THE TREATMENT OF TETANUS.

1. Tetanus antitoxin injections.

Rudolf Schwarz (*Brit. Med. Journal*, Jan. 2, 1892) gives an account of his treatment of a boy, suffering from tetanus, by the method of Tizzoni and Cattani (*Centralb. f. Bakt. u. Parasit.*, Bd. x., No. 24), which consists of the injection of antitoxin obtained from the blood serum of dogs that have been rendered immune to tetanus. The boy was cured in five days, although he had been suffering from the tetanic convulsions already for fourteen days. 20 cgrm. of the antitoxin were injected each time. Schwarz

thinks that the antitoxin obtained from rabbit's serum will be found more useful than dog's, as it is more stable and more powerful.

E. Pacini (*Rif. Med.*, Jan. 7, 1892) cured a case after chloral had been used unsuccessfully for some days. He injected 25 cgrm. of antitoxin twice daily for sixteen days; when the spasms were very violent he also gave chloral in 30-grain doses.

Finotti (*Wien. Klin. Wochenschr.*, No. 1, 1892) reports a case of complete cure from the injection of 15 cgrm. of antitoxin at first, and afterwards of 20 cgrms. in 3 cc. of sterilised water.

Taruffi (*Rif. Med.*, April 21, 1892) had a case of tetanus in which the urine injected into rats caused death in twenty-four hours. He now injected doses of 25 cgrm. into the patient, who recovered in eleven days. Urine taken from the patient twenty-four hours after the treatment was commenced did not cause tetanus in rats.

Rénon (*Ann. de l'Institut. Pasteur*, April, 1892) reports two cases treated by antitoxin, which, however, ended fatally; he thinks that delays in the treatment are dangerous.

Behring and Frank (*Deuts. Med. Wochenschr.*, April 21, 1892), experimenting with antitoxin on mice, found that the minimum amount necessary to protect from tetanus poisoning was 1 to 40,000 of the body weight. Serum kept for two months seemed to undergo no change, except to be more powerful. As a curative treatment much larger doses are required than those used merely to protect from the disease.

Valliard and Rouget (*Ann. de l'Institut. Pasteur*, June, 1892; *Suppl. Brit. Med. Journal*, p. 20, July 30, 1892) give an article on the life history of the tetanus bacillus, and on its behaviour after injection into animals, on its subjection to heat, and in passing from one animal into another.

G. Casili (*Rif. Med.*, Jan. 1, 1892) mentions a successful case in which he injected 25 cgrm. twice daily for three days.

2. Chloral and Calabar bean.

A. Radcliffe (*Therap. Gaz.*, No. 11, p. 742) gives the case of a boy 10 years of age in whom tetanus came on ten days after an injury. He was placed in a dark room and given 7 grains of chloral every hour, and *miv* of the fresh fluid extract of Calabar bean every two hours. Recovery took place in five weeks.

3. Cold baths.

Rivière (*Lyon. Médical*, July 31, 1892) had two cases of tetanus, with very high temperature, in whom treatment by chloral and opium had been quite unsuccessful. They were put into cold baths with marked improvement; in one case the first bath

seemed to stop all the fits, and the patient was well in a week; in the other case the baths were repeated several times, and the patient recovered.

4. Corrosive sublimate injections.

Celli (*Arch. Ital. di Pediatri*, Nov., 1891) adopted the plan first practised by Baculo, and in the course of seven days gave hypodermically nine injections of corrosive sublimate, each containing $\frac{1}{15}$ grain dissolved in water. The patient, a boy, immediately began to improve, and was completely cured in five days. As a result of the injections there was progressive fall of temperature and gradual increase of urine.

5. Carbolic acid injections (Baccelli's treatment).

This was first recommended by Baccelli in 1888, who attributed its usefulness in tetanus to the sedative action of the drug. Gancel and Frache (*Arch. de Méd. et de Pharm. Milit.*, Sept., 1891), in mentioning a case of tetanus cured in about three weeks by hypodermic injections of .01 gram. of carbolic acid every two hours, would rather believe the efficacy of the treatment to depend on the antiseptic power of the remedy.

Strazzeri and Titone (*Rif. Med.*, Nov. 10, 1891) used injections of a 2 per cent. solution of carbolic acid every six hours, and gave opium internally in a case of tetanus; power of mastication returned in fifteen days, and complete recovery occurred in four weeks.

Carlo (*Rif. Med.*, March 2, 1892) used a 1 per cent. solution of carbolic acid, followed by warm bathing and enemata of chloral and potassium bromide. The symptoms commenced on the twenty-seventh day after the injury, and the treatment was continued four times a day for fifteen days, recovery ensuing on the twenty-third day of the treatment.

B.—TREATMENT OF MUSCULAR SPASM.

1. Convulsive tic treated by atropine and conine.

Graeme M. Hammond (*Medic. Rec. N.Y.*, p. 237, Feb. 27, 1892) says that in the treatment of convulsive tic bromides alone or arsenic were of no use, and the symptoms were made worse with iron, strychnine, and phosphorus. Conine was very good if there was no organic lesion and was better than atropine. He gave the conium as the fluid extract, beginning with $\text{m}\nu$ doses increased by mi or mii daily until the "tic" ceased; or the conine itself may be given. If, however, vertigo and double vision ensued the dose must be at once reduced for a time.

2. Reflex action of trigeminus.

Kurt (*Deutsch. Medic. Zeitung*, May 7, 1891) suggests a

method for controlling spasmodic conditions due to motor neuroses. Recognising the fact that the application of certain irritants to the peripheral endings of the trigeminus, particularly at the conjunctiva and the nasal mucous membrane, retards reflex motor action, he dusts such drugs as antipyrin, quinine, or sugar with a camel-hair pencil either in the eye or on the nasal mucous membrane, and asserts that he can thereby control the spasm of whooping-cough, laryngo-spasm, facial contractions, and some forms of epileptic attacks.

VI.—THE ÆTIOLOGY AND TREATMENT OF LOCOMOTOR ATAXIA.

Various papers are annexed showing the great frequency with which syphilis is a cause of locomotor ataxia. It must be remembered, however, that although syphilis is the commonest cause, yet cases occur in which no history or signs of preceding syphilis can be found. As regards treatment it is doubtful if a genuine case of tabes has ever been cured, and remembering the pathological condition of the spinal cord, this is not to be wondered at. Is it not possible that some of the cases reported as cured completely, may have been cases of multiple neuritis rather than of true tabes? The subjective symptoms can undoubtedly be relieved, and I would again direct attention to Bonnuzzi's method as being simple and effective. I have used it in several cases of tabes during the past year, and always with relief of the subjective symptoms. Full details will be found in "THE YEAR-BOOK OF TREATMENT" for 1892.

1. The ætiology of tabes.

Erb (*Berlin. Klin. Wochenschr.*, 1891, Nos. 29 and 30) gives the results of an examination as to the cause of tabes in three hundred and seventy cases. These were divided into three groups, (*a*) those occurring in the better classes; (*b*) those in the lower classes; and (*c*) those occurring in women. In the first group there was a history or present manifestation of syphilis in 89·2 per cent.; in the second group in 76 per cent., and in the third in 89·5 per cent. In three hundred cases among the better class, the first symptoms appeared in from one to five years following infection in 12 per cent.; from six to ten years in 37 per cent.; from eleven to fifteen years in 25 per cent., and from sixteen to twenty years in 14 per cent. On the other hand, inquiry into the antecedent history of five thousand five hundred cases of widely various disease in

males disclosed the remarkable fact that but 22·5 per cent. were syphilitic, and 77·5 per cent. non-syphilitic.

Other causes of tabes that were effective in conjunction with syphilis, but which alone or associated were of minor importance, were exposure to cold, inordinate muscular activity, sexual excesses, trauma and neuropathic tendencies. It is thus demonstrated that in the vast majority of cases tabes is a sequel of syphilis, and that syphilis is by far the most important, the most common, and the most potent ætiological factor in tabes.

Minor (*Neurolog. Centralbl.*, July 1, 1892) has also pointed out the great power of syphilis in the causation of tabes. He has obtained the following statistics from his investigation of 1,642 patients suffering from diseases of the nervous system. In 496 Russian males the maximum percentage of syphilitics was 24 and of tabetics $4\frac{1}{2}$; 90·9 per cent. of the latter were undoubtedly syphilitic. Of the 264 Russian women 9 to 11 per cent. were syphilitic and 1 per cent. suffered from tabes, all the latter being the subject of syphilis. Only about 7 per cent. of the 449 Jews had suffered from syphilis, and $\frac{1}{2}$ per cent. manifested tabes, every one of which cases was syphilitic. The 443 Jewesses included about $1\frac{1}{2}$ per cent. of syphilitics and only one case of tabes (who had had syphilis).

2. General treatment.

Leyden (*Berlin. Klin. Wochenschr.*, 1892, Nos. 17 and 18) refers to the drugs most commonly used. With regard to mercury he would not oppose its use, but he rejects altogether the syphilitic origin of the disease. Many cases that have got well under mercury have been examples of peripheral neuritis. The treatment by baths sometimes yields good results. Electro-therapy is in the author's opinion a valuable method of treatment, but massage had little effect. Leyden does not believe much in suspension, nor in nerve-stretching, nor yet in the orthopædic treatment. He lays much stress on what is called the compensatory treatment of the disease, namely, that when the disease is incurable, the disturbance of function should be minimised as much as possible. In tabes the ataxia is one of these disturbances, and this may be in great measure compensated by the use of graduated exercises. The very valuable paper by **Fraenkel** (*Münch. Med. Wochenschr.*, 1890, No. 52) on the use of this method in disturbed co-ordination is referred to. Under the head of complications the pains and gastric crises are chiefly alluded to. The author cautions against the indiscriminate use of morphine; the loss of weight often occurring rapidly after the gastric crises lasts long and must be counterbalanced by good feeding in the intervals.

The avoidance of over-exertion, exposure to the weather, and excesses of all kinds, is naturally insisted on.

3. Bonnucci's method of stretching cord.

Benedikt (*Rev. de Thérap. générale et Thermale*, 1892, No. 2, p. 25) points out that experiments upon the dead body have shown that the mechanical distension undergone by the spinal cord is three times as great by Bonnucci's method as by suspension. The patient lies upon the back, with the head maintained in a somewhat elevated position by means of a bolster; the lower extremities are now flexed upon the body through a semicircle, the knees being brought over into a position upon the chest of the patient, the legs being held straight. The operator does this by seizing the feet and, bringing them over the shoulders of the patient, practically rolls him up. The result is that the vertebral column is strongly flexed forwards. This position must be attained with care, for it may give rise to back-ache, or swelling of the posterior aspects of the thighs, from intramuscular hæmorrhages. Benedikt reports a case where attacks of syncope and vomiting for many hours, with adynamia for several days, followed this treatment. It also has a greater effect upon respiration and circulation than suspension, but the distension to which one subjects the trunk and limbs can be readily graduated, and, if necessary, can be immediately terminated. Benedikt reports that the gait of the patients was greatly improved and the neuralgias markedly and constantly relieved.

4. Relief of pains by flannel bandages.

Leydy, of Philadelphia (*Therap. Monat.*, Dec., 1891), recommends the use of flannel bandages as an effective means of relieving the lancinating pains of tabes. They should be applied firmly from the toes up to the middle third of the thigh. Bandages applied firmly round the abdomen likewise lessen the girdle sensations. The same means is of use in the neuralgia that accompanies herpes zoster.

5. Brown-Séquard's fluid.

Depoux (*Sem. Méd.*, Jan. 8, 1892) showed a patient whom he had formerly presented to the Société de Biologie in May, 1891, as an example of tabes cured by the hypodermic injections of testicular fluid. Not only was the cure maintained, but the muscular energy and the precision and strength of the movements, as well as the power of resisting fatigue, were most remarkable. He also showed another patient who had commenced with tabes in 1890, and who had been completely cured in 5 months by the same treatment; his condition became quite normal, but the knee-jerk was still absent. M. Brown-Séquard stated that Gibert, of

Havre, had also cured a case of tabes in the same way, and Owspenski, of St. Petersburg, had informed him that of thirty-six cases of the same disease, the injections had effected a cure or marked improvement in twenty-nine.

VII.—THE TREATMENT OF NEURASTHENIA.

1. Causes and prevention of neurasthenia.

Lockwood (*New York Med. Journal*, July 25, 1891) gives the following predisposing causes of neurasthenia:—Constitutional hereditary peculiarities, disparity of age of parents, excessive use of alcohol by parents, marriage of blood relations, parents with gout, phthisis, exhausting diseases, malaria, and excessive mental exertion in childhood without attention to the physical powers. Insufficient lighting and ventilation of schoolrooms, the administration of opium to children, the hand feeding of children, irregular sleeping and eating, the demands of modern society on women, and syphilis also may play a part in the causation. Among exciting causes he reckons anæmia, lithæmia, oxaluria, diseases of the uterus and ovaries and of the prostate gland; overwork, worry, prolonged mental strain, excessive venery, and over-stimulation of nerve centres.

Prevention involves the recognition of the inherited proclivities. Children and families in which there is hereditary predisposition to tubercle should early be made to take exercise in the open air, and due weight should be given to the importance of nutritious diet, abundance of sleep, and short hours of study. Popular instruction should be given as to the danger of giving opium or patent medicines containing it to infants and children. Temperance in eating and drinking, with sufficient sleep and exercise in the open air, should be enjoined, and in the case of women the avoidance of fatigue incident to fashionable life.

2. Massage in neurasthenia.

R. Perdigo, of Barcelona (*Gacet. med. Catal.*, Nov. and Dec., 1891), in speaking of general massage, says it is useless in those cases of neurasthenia that are well nourished because it predisposes to an exaggerated morbid excitability. In the asthenic cases, when carried out with care and prudence by skilled masseurs, good results may be expected; the circulation is improved, nutritive processes are hastened, disintegration of elements unfavourable and useless to the organism is brought about, and as results the nervous system is stimulated, the appetite is improved, and the general condition of the patient is bettered.

3. Injection of infusion of nerve tissue.

Constantin Paul (*Bull. de l'Acad. de Méd.*, No. 7, Feb. 16, 1892) describes the effects of the injection of a glycerine extract of the grey matter of sheep's brain. His experiments were continued for more than a year. The matter employed was made by macerating the grey matter of a sheep's brain in five times its weight of glycerine for twenty-four hours, diluted with an equal amount of water, and filtered through porcelain under great pressure. From 2 to 5 cub. centim. were injected into the back and gave rise to no inconvenience. Three cases of chlorosis with neurasthenia, three of simple neurasthenia, one of abnormally slow pulse, and four of tabes, were experimented upon. The patients first felt increased strength and improved in spirits. Muscular weakness rapidly diminished, exercise being taken without fatigue, pains in the back disappeared after a few injections; even in tabes the lightning pains ceased; neurasthenic headache and insomnia vanished, and there was increased cerebral activity, the appetite improved, there was a gain in weight, and dyspepsia disappeared. In chlorosis iron should also be given. Paul says that by means of the injections the patient could convert his food into force. Nervous force is developed first and the increase in weight and enrichment of the blood follow later, but none the less surely.

4. Anorexia nervosa and its treatment.

Goodhardt (*Amer. Journal of Med. Scien.*, vol. cii., No. 13, p. 238, 1891) insists that this condition is very common in neurotic persons in whom digestion is slow and who diet themselves, leaving off one thing after another until they exist upon next to nothing; the food also is reduced or introduced pre-digested, and the stomach thus gets smaller and lazy. The treatment is to restore the nervous energy of the patient and gradually to tax the stomach more and more. Rest in bed, strychnine and iron, and food methodically increased should be ordered. Milk is the food to begin with, and cream should soon be added, with pounded meat and vegetables.

VIII.—HYPNOTISM AND ELECTRICITY.

A.—HYPNOTISM.

J. J. Eskridge (*New York Med. Journal*, August 1, 1891), in a paper on hypnotism, says he employs the method of inducing hypnotism by placing the patient sitting comfortably, requesting him to close his eyes, and then suggesting the phenomena of sleep

to him. He gives the following conclusions: 1. Hypnotism is a reality and free from any mysterious influence of the hypnotist over his patient. 2. Its therapeutic value depends on the mental impressions made during hypnosis. 3. Much that is accomplished by the aid of hypnotism may be obtained by repeated suggestions without hypnosis. 4. Proper precautions will prevent any untoward effects. 5. Whether the value of hypnotism is greater than its dangers should receive careful investigation. 6. No one should be allowed to hypnotise without a State licence. 7. The practice of hypnotism should be limited to physicians and other scientists. 8. No one of questionable character should be licensed, and anyone so licensed should forfeit the permission on being convicted of any crime.

B.—ELECTRICITY.

The therapeutic value of electricity.

Max Weiss (*Centralbl. f. d. ges. Therap.*, July, 1892) first contests Mœbius' view that the greatest number of therapeutic successes obtained by electricity are the result of suggestion. The faradaic current has a stimulating action on the skin, nerves, and blood-vessels. In producing contraction of the muscles it promotes their nutrition, and, as far as possible, prevents their atrophy. The internal organs may also be influenced, and the author says that hyperæmic states of the brain and spinal cord may be thus lessened. General faradisation is useful in diminished nutrition and general debility. In these cases the current may be made to pass through the operator, contact with the patient's body being effected by the hand.

Galvanism acts as a sedative in neuralgia, but success depends on the density of the current. The bactericidal action of the galvanic current is referred to. In discussing the number and duration of the sittings the author says that in cases of acute neuralgia the current should be applied three or four times a day. In cases of commencing degeneration the galvanic current may be of service. The motor power of the legs may be improved and the gait become more steady. Galvano-faradisation is then referred to, the author having recently employed this method with considerable success. Faradic baths of short duration and medium strength have a stimulating effect on motor activity, and are useful in functional spinal affections, in intestinal atony, and in neurasthenia. Faradic baths of greater strength and somewhat longer duration lessen motor irritability, and are beneficial in neuroses accompanied by spasm, convulsion, or tremor. The galvanic bath is seldom used; but it is of service in Graves'

disease. The author concludes that electricity is a valuable therapeutic agent ; the field of its action comprises the numerous neuroses, cerebral and spinal neurasthenia, and neuralgia. Neuritis, early degeneration in nerves, the various forms of myelitis and the presence of inflammatory products in the nerves, tendon sheaths, muscles, and joints are also included.

IX.—THE TREATMENT OF DRUG CRAVINGS.

1. General treatment of alcoholic inebriety.

Charles L. Dana (*New York Medic. Record*, No. 1,115, p. 309, 1892), has made a very careful study of 614 male alcoholics treated at the Belle Vue Hospital. He believes that strychnine has a certain degree of specific action in inebriety and in alcoholic intoxication. In acute alcoholism, when the system is overwhelmed with the poison, $\frac{1}{60}$ grain every two or three hours should be given ; in the chronic form it should be administered in good doses for a considerable time. In ordinary acute delirium of alcoholism 20 to 40 grains of chloral repeated in smaller doses in two or three hours, and combined with digitalis and strychnine, is the safest and surest means of controlling the excitement and securing sleep. A preliminary laxative, and a careful diet of hot milk and beef tea, with red pepper, should be insisted upon. In febrile delirium tremens depressants must be used with care ; cold baths or cold wet packs with friction must be applied for two or three hours while the temperature remains high. Hypodermic injections of morphine are rarely needed, and are not advisable.

2. Treatment of delirium tremens.

Norman Kerr (*Brit. Med. Journal*, 1892, vol. ii. p. 299) says that delirium tremens might be either a morbid condition produced by nervous exhaustion, or a malady developed as an effect of alcoholic poisoning ; he believes it is the latter, and arises from the poisoning of the cerebral tissue. Acting on this belief, he aims in his treatment at the elimination of the poison as speedily as possible. The most serviceable drug for this purpose is the liquor ammon. acetat. in doses of $\mathfrak{z}\text{i}$ given every hour, till free perspiration resulted, and then $\mathfrak{m}\text{xv}$ every four hours. He considers that alcohol, opium, chloral, bromides, and the like should all be avoided. The strength should be maintained by milk and soup, beef-tea, meat-juice, and chicken broth. In early cases, or even in the height of the attack, he recommends a hot or cold wet pack frequently repeated, if necessary, to induce sleep. This

natural sleep he looks upon as the first step in the cure, and far preferable to any artificial sleep.

3. Hypnotism in the drink habit.

C. Lloyd Tuckey (*Brit. Med. Journal*, Aug. 27, 1892, p. 459), in considering the uses of hypnotism in the drink habit, concludes :
 1. That hypnotism is an agent of great value in the treatment of chronic alcoholism, and should be tried when ordinary treatment has failed. 2. It acts by augmenting the natural suggestibility of the subject, and replacing morbid suggestions by moral ones, and by developing controlling or inhibitory impulses which were either undeveloped or had been allowed to fall into abeyance. 3. Though, as a general rule, the deeper the hypnosis the greater the effect of suggestion, yet some of the best cures could be effected when the patient was but slightly hypnotised. 4. The patient should be under strict supervision during the first part of the treatment, to guard against the deception so commonly practised by these subjects. 5. Though relapse was serious, it should not by any means lead to the abandonment of the treatment, as perseverance was the first element of success in these cases. 6. In capable and conscientious hands the use of hypnotism in these cases was never attended with risk, but with the cure of the drink habit there invariably occurred an improved higher moral tone generally.

4. Cocainism.

Conolly Norman (*Journal Ment. Scien.*, 1892, No. 125, p. 195) gives a note of warning against the abuse of this drug. He believes that it is more seductive than morphine, and more rapidly and quite as firmly fastens upon its victims. It produces early mental breakdown, both in the moral and intellectual spheres ; is intensely toxic, rapidly bringing about destructive tissue change. It is probably the most agreeable of all narcotics, and, therefore, most alluring.

5. The opium habit.

Stephen Lett (*Journal Nerv. and Ment. Dis.*, Oct., 1891, p. 657) strongly believes in the gradual reduction method in the treatment of the opium habit. He calculates the amount of opiate taken, in terms of morphia, and gives this by the mouth in such quantities and at such times as to sustain the patient and prevent depression. The dose is then gradually reduced, and as the daily amounts lessen, the reduction must be carried out more gradually ; in fact, when the daily amount has reached only 1 grain it may require from three to four weeks longer before the drug is finally omitted.

X.—THE TREATMENT OF INSANITY.

As we have already mentioned, there has been a great increase in the published works of asylum physicians as regards the drug treatment of insanity. That all-important method of treatment known as "asylum management," a term only thoroughly understood by those who have been resident in asylums, is almost as difficult to write down in the form of articles as it is to learn by mere book reading.

1. Antipyrin in hallucinations.

Marandon de Montyel (*France Médicale*, Nos. 42 and 46, 1891) says antipyrin can be administered to the insane for several weeks in daily doses of from 75 to 100 grains without any bad effects. It should be given in milk or soup. It appears to have a good effect on reflex or sympathetic hallucinations, probably due to its anæsthetic action. In feeble doses it has no effect on other hallucinations, and in larger doses it aggravates them.

2. Sulphate of duboisin.

Max Lewald (*Therap. Monatsh.*, Dec., 1891) considers duboisin sulphate, in doses of $\frac{1}{35}$ grain injected subcutaneously, to be a useful sedative and hypnotic which rarely fails. It produces mydriasis at first; ten to thirty minutes later restlessness is decreased, and soon after this sleep sets in. This result he obtained in two-thirds of the twenty-two cases in which he tried it. The sleep lasted from two to seven hours. Before sleep set in vertigo, weariness, and rarely giddiness appeared. Dryness of the throat and thirst were observed the day after the injection. From his experience of one case he says that the drug is not altogether free from danger, and that doses of $\frac{1}{30}$ grain should never be exceeded.

V. Preininger (*Le Bullet. Médic.*, No. 88, 1891) likewise advocates the use of this remedy in mental disease. He thinks $\frac{1}{35}$ grain hypodermically the highest dose that should be given. After waking drowsiness and exhaustion may be present for some hours. Larger doses, such as $\frac{1}{20}$ to $\frac{1}{22}$ grain cause restlessness, twitching of the extremities, rise in the pulse and respiration rate, headache, weakness, and hallucinations. Given internally, the action of the remedy is much slighter, even doses of $\frac{1}{35}$ grain having then no sedative effect.

E. Belmondo (*Rivista Sper. di Freniatria e Med.*, leg. xviii. p. 154) thinks it is an excellent sedative in women in all forms of mental excitement, and is also a very good hypnotic; the maximum

dose for the first injection should not exceed $\frac{1}{60}$ grain, or later $\frac{1}{40}$ grain ; $\frac{1}{120}$ grain is often quite sufficient.

3. Hypnotism.

George M. Robertson (*Brit. Med. Journal*, Aug. 27, 1892, p. 460) thinks that hypnotism may be used in the insane for the following purposes :—1. In intractable insomnia where drugs had not succeeded. 2. As a sedative in excitement to prevent this passing into a state of mania. 3. To dispel fleeting delusional states and the minor psychoses. 4. To overcome the morbid resistance of patients for their own benefit, as to direct them to take food. 5. As a substitute for restraint, but here it is an uncertain method. The insane are much more difficult to hypnotise than the sane, and verbal suggestion during hypnosis was feeble and less permanent. Melancholic subjects were hypnotised with difficulty, but cases of simple mania with great facility. On the whole, hypnotism is a useful minor agent in the treatment of insanity.

4. Hyoscin.

Ramadier and Sérieux (*Les Nouv. Remèd.*, 1891, No. 21, p. 502) believe this drug is of great service in all attacks of intense excitement. Simple mania, alcoholic delirium, epileptic delirium, excitement from great sensory disturbances, in melancholia, and general paralysis. They administer hypodermically $\frac{1}{240}$ to $\frac{1}{80}$ grain, and the effect is obtained in half an hour, and consists in mental repose, intellectual calm, soon followed by sleep which lasts frequently for twelve hours, with a further period of quiet. Cardiac lesions, Bright's disease, pneumonia, and general paralytic cachexia have not seemed to be contra-indications to its use, and various accidents attributed to the drug appear to be due to impurities.

Loddé (*Thèse de Paris*, 1891) makes similar observations, but does not recommend its use in cachectic and cardiac conditions.

G. Sanna-Salaris (*Annal. di Freniatr. e Scienz. affini del R. Manicourio di Torino*, 1891) says in some cases the dose of hyoscin may be gradually increased to $\frac{1}{30}$ grain, but only with the greatest care. It produces a heavy sleep often followed by headache ; it probably has no anæsthetic action.

Weatherby (*Journal Ment. Scien.*, July, 1891), while strongly recommending the use of hyoscin for quietening intractable patients, calming excitement and irritability, yet states that it must be given with the greatest care. The antidotes in cases of overdose are pilocarpin and caffein. He is of opinion that it lessens the tremors of sclerosis in patches, chronic alcoholism, paralysis agitans, and often of general paralysis.

5. Franklinisation.

Paul Ledame (*Bullet. de la Soc. de Medic. Ment. de Belgique*, Sept., 1891) has used this form of electricity in psychical depression, hypochondriasis, and melancholia with insomnia. In active melancholia the electrostatic bath and the "light breeze" to the head and præcordial region are good. When a sedative influence is desired shocks and sparks should be avoided. In melancholia with apathy a more stimulating treatment, as sparks, is needed. He has successfully treated depression with suicidal ideas. Static electricity is a good tonic in asthenic psychoses after acute illnesses and in neurasthenic conditions from overwork of all kinds.

6. Faradic current.

Magalhaes Lomas (*Annales Medico-Psycholog.*, Nov. and Dec., 1891) has used this method in melancholia with suicidal attempts and apathy. The negative pole should be placed on the neck, the positive in one hand of the operator, the other hand being placed on the head of the patient for ten or twelve minutes, the current being a weak one. He obtained equally good results in stupor after mania, but no good result in epileptic mania.

Jules Morel (Ghent) concludes that it is principally in melancholia and melancholic stupor that electricity is so useful, but he found little good result in mania, dementia or general paralysis.

7. Trional and tetronal.

Kast and Baumann in their work on sulphones concluded that the hypnotic energy of these bodies would be increased in proportion to the number of contained ethyl groups; thus trional (diethyl-sulphon-methyl-ethyl-methane) would be more active than sulphonal (diethyl-sulphon-dimethyl-methane) and tetronal more active than either. Barth and Rumpel found, however, that the new bodies were not superior to sulphonal. Schultze (*Therap. Monatsh.*, Oct., 1891) has used trional and tetronal in various forms of insanity. Tetronal was always less efficient than trional in maniacal conditions. By giving 30 grains night and morning excitement and destructive propensities were lessened. In several paranoics who were tortured by their hallucinations 15 to 45 grains of trional acted as a good soporific. In some cases tetronal increased the hallucinations, and emesis, cephalalgia, and loss of appetite were noticed. Schultze concludes that trional is a more reliable sleep-producing agent than either sulphonal or tetronal, and very rarely causes unpleasant after-effects. He estimates that in uncomplicated insomnia trional will succeed in 75 per cent. of the cases and tetronal in 60 per cent.

Schaefer (*Berl. Klin. Wochenschr.*, 1892, No. 29) has employed trional in 77 cases and tetronal in 49 cases of mental disease. He gave single doses of 15 to 30 grains in hot milk or wine. Sleep came on in from 10 to 20 minutes and lasted from 6 to 10 hours. Single doses of 45 to 60 grains, or divided doses amounting in all to 90 or 120 grains, may be safely given. Tetronal is the better sedative, and trional a good hypnotic in neurasthenia, functional psychoses, and organic brain disease. It is useless in the morphine or cocain habit or where there is actual pain. Tetronal is better in cases where pure bodily restlessness prevents sleep. Neither is of service for excitement with marked impulse, and they cannot take the place of hyoscin. There were practically no serious after-effects noticed, and tolerance was not seen.

A. Ramoni (*Rif. Med.*, July 7, 1892) concludes as follows from his observations on over 50 insane patients. 1. Trional and tetronal are superior to sulphonal and chloral. 2. The patient awakes more easily, and there are no unpleasant after-effects such as nausea, vomiting, or loss of appetite. 3. The action of the drugs is rapid, about 30 to 40 minutes. 4. Trional is superior to tetronal, the sleep induced by the former being sounder and more lasting. 5. The sleep after either of the drugs lasts on the average 6 to 8 hours, and is not disturbed by dreams.

8. Sulphonal.

Johnstone (*Journal Ment. Scien.*, Jan., 1892) says this drug is employed with great benefit in acute mania and other forms of recent insanity. The sleep produced was often continued into the next day.

Foster (*Medic. Press*) thinks that the drug acts principally as a motor depressant that produces a restfulness. A sufficient dose was generally 30 grains. Epileptic attacks were lessened in violence. Motor and sensory depression, persistent somnolence, digestive disturbances and a rash were noted as after-effects.

9. Somnal or ethyl chloral urethane.

Umpfenbach (*Therap. Monatsh.*, May, 1891) has had good results with this drug in 70 cases, a passing effect in 13, and no effect in 24. It was useless to raise the dose above 60 grains. Sleep was produced in $\frac{1}{2}$ to $\frac{3}{4}$ hour and lasted 5 hours untroubled by dreams, and not followed by fatigue, malaise, skin eruptions, or digestive disturbances; it has no action in epilepsy, and cardiac affections are not a contra-indication to its use.

10. Subcutaneous injection of salt solution.

Geo. Ilberg (*Neurolog. Centralblatt*, No. 23, 1891) has experimented with the subcutaneous injection of .75 per cent. salt solution in cases of insanity with refusal of food and consequent

exhaustion. He injected 500 to 700 ccm. at a temperature of 30° to 37° C. into the tissues. It was found to lessen the exhaustion and greatly improve the circulation. After the injections the patients often spontaneously took food. From experiments made on himself he found that the results of such injections were profuse salivation accompanied by a pungent and briny taste, and he thinks that patients take food to get rid of such unpleasant tastes.

11. The influence of music on mental disease.

J. van Deventer (*Journal Ment. Scien.*, Oct., 1891) has studied the effects of music on the insane and thinks it should only be employed with great care. It is contra-indicated in all acute mental conditions, it is of no use in moral insanity, and should be employed with caution in neurotic children; it is often harmful in neurasthenia, producing serious after-effects, and is generally bad in acute delusional, and impulsive insanity, in alcoholic insanity with hallucinations, and in hysteria. It is, however, useful, as a rule, in chronic insanity and in mental convalescence, and may produce sleep; in chronic mania it may assist the patient into more orderly and regular conduct; in idiocy it is of great value. The practice of music itself is a valuable agent in particular affections to employ the patient, to lead his thoughts into definite channels, and to improve his disposition and his will.

XI.—SPECIAL METHODS OF TREATMENT IN NERVOUS DISEASE.

1. The rest treatment of nervous disease.

Wharton Sinkler (*Journal Nerv. and Ment. Dis.*, May, 1892, p. 321) recapitulates the rest treatment as consisting in absolute rest, over-feeding, passive exercise in the form of massage and electricity, and isolation of the patient from all relatives and friends if suffering from hysteria or neurasthenia. As a rule, the patient may be allowed to sit up at the end of six weeks for 15 to 20 minutes each day, and after a few days may begin to walk about. Dr. Weir-Mitchell has recently been using what he calls a "partial rest treatment" only to be employed in cases of neurasthenia which are not extreme, or in persons who cannot spare the time for the full rest treatment. It is as follows:—On waking in the morning the patient is to take a cup of cocoa, after which she is to rest for 20 minutes, she is then to get up and sponge herself (or be sponged by an attendant) with cold water, then rapidly dried with a coarse towel, dress leisurely and lie down for 20

minutes before breakfast. After this meal she is to lie down for an hour and rest absolutely. Massage should be given at 10 a.m. or 11 a.m. followed by an hour of rest, and then a glass of milk or strong soup. The patient may then go about and attend to any duties until luncheon, after which meal rest is again to be taken. During the afternoon she may walk or drive and attend to business, but should not exercise more than is necessary. If electricity is used it is best applied just before the evening meal, or at bed-time. Fluid extract of malt may be given with advantage just before each meal. She should retire early to bed.

In other diseases besides hysteria and neurasthenia the rest treatment is of much service, as, for instance, in tabes, in spastic paraplegia, in neuralgia, and neuritis (as shown in sciatica and alcoholic paralysis), certain forms of mental disease dependent on mal-nutrition, as in melancholia or the insanity of lactation. It is often of great service in chorea, and may benefit epilepsy, but does not of course cure it. The rest treatment is also of much benefit in chronic alcoholism and the opium habit to restore the digestive functions, and in the latter case gentle massage and a hot bath at night help to bring on sleep.

2. The bicycle in the treatment of nervous disease.

Graeme M. Hammond (*Journal Nerv. and Ment. Dis.*, Jan., 1892) points out that exercise for the treatment of nervous disease should be taken out of doors, and should be combined with pleasure, so as to exercise both the muscles and the mind. The continual introspection so common in hysteria, neurasthenia, and hypochondriasis may thus be overcome. For these objects he advocates strongly the riding of a bicycle, where we get the exercise of skill, the exhilaration of rapid motion, the continual change in the landscape, and the exercise of almost every muscle in the body. He considers this exercise much better than such wearisome exercises as Indian clubs, dumb-bells, etc., which the patient very soon gets tired of. He has tried the method in sixteen cases with excellent results; three were cases of old infantile paralysis, one alcoholic paralysis, one hysterical paralysis with contractures, six neurasthenia, one sexual perversion, and one abnormal development of sexual appetite. In cases of neurasthenia, the patients should be encouraged to ride as long as possible without experiencing fatigue, and the distance may gradually be increased up to ten or twenty miles a day; they should be accompanied by other riders, provided these are not also neurasthenics.

In this method of treatment, the riding of the bicycle should be taught privately by a man of discrimination and patience, who

understands that he is dealing with a case of sickness. The machine must be perfectly comfortable, work easily, with no irritating "rattling" or "squeaking"; pneumatic tyres are the best. In riding, the body must not be inclined forward, but the head be held well up and the chest out.

3. The treatment of infantile paralysis.

Simon (*Journal Nerv. and Ment. Dis.*, Nov., 1891) recommends that at first counter-irritation should be used along the spinal cord at points corresponding to the roots of the paralysed nerves. At the same time the functions of the skin should be stimulated by warm or vapour baths, given to the child in bed. Chloral, aconite, and conium are used to calm the nervous excitement. After the first week, electricity should form the basis of treatment. Weak galvanic currents should be used, the negative pole being placed in a basin of water, into which the hand is placed while the positive pole is applied labile to the arm and shoulder. The length of treatment is about eight to ten months. Later, faradism is to be used, but always with the greatest prudence.

4. The treatment of syphilitic subjects predisposed to nervous disease.

Alfred Fournier (*Gaz. Hébdom. de Méd. et Chirurg.*, 1891, No. 51, p. 606) taking up the question of the possibility of mercury being the cause of tabes in syphilitics, disposes of it by citing indisputable facts that show the impossibility of this being the case, believing that those patients are predisposed to syphilis of the nervous system who suffer from nervous exhaustion, either intellectual, moral, or physical, and who are of a nervous heredity. He suggests bromides to subdue nervous excitability, and hydrotherapy as a preventive. In the actual treatment by mercury and the iodides, in cerebral syphilis some brilliant results were seen; in medullary syphilis, failures were in greater number than successes; in tabes in an early stage cure might result, but if the ataxia is confirmed no cure is possible; in general paralysis also no good could be done. He believes that greater success will be obtained in the prevention than in the cure of nervous disease in syphilitic subjects.

5. The management and care of hemiplegics.

W. M. Leszynsky (*New York Med. Journal*, 1892, vol. lv. p. 202) says that rest should be insisted upon, that the bowels and bladder should be regularly evacuated, and bed sores avoided by an application of a 25 per cent. solution of zinc oxide in alcohol to the suspected part. Early passive movement is advisable, faradisation after four or six weeks, or if contractures exist, then galvanism with the negative pole applied to the nerve trunks. As

prophylactic measures, muscular overstrain must be avoided, nitrogenous food reduced, the bowels kept open, and high arterial tension lowered.

6. Testicular juice and spermin in the treatment of nervous disease.

Capriati (*Rif. Med.*, July 8, 1892) has studied the therapeutic effects of injections of testicular juice, first on four lunatics suffering from acute melancholia, and next on healthy subjects. In the former series of cases, after sixteen days of treatment, no real modification of the morbid state was ever noticeable. In all of them, however, throughout the treatment and especially in the first few hours following an injection, a definite effect was clearly produced on the cardio-vascular apparatus, consisting in the strengthening of the heart's impulse and an increased tonicity of the walls of the blood-vessels. These effects ceased on the discontinuance of the treatment. In the healthy subjects the results on the muscular power were entirely negative. From these experiments, Capriati concludes that testicular juice has no dynamogenic influence on the nerve centres, its effects being limited to a mere temporary nerve stimulation. He attributes the wonderful effects reported by other observers, not to the action of the substance, but to a powerful psychical factor, such as suggestion.

Poehl (*Bullet. de l'Académ. des Scien.*, July 25, 1892) makes a further contribution to our knowledge of spermin. He is convinced that the activity of Brown-Séquard's injections is due to this substance, which is found not only in the testicles, but in all the glandular organs, especially the pancreas, which contains large quantities. Experiments have been made by Russian physicians with spermin hydrochlorate. Their results lead them to consider this substance as quite free from danger, if used with care, and to act as an excellent nervine tonic. It acts on the body after the manner of a true ferment, producing an increased rapidity of oxidation in the tissues.

DISEASES OF THE STOMACH, INTES- TINES, LIVER, ETC.

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I.—METHODS OF INVESTIGATING GASTRIC DISORDERS.

1. The amount of hydrochloric acid secreted.

In former issues of the "Year-Book" will be found abstracts of the papers which have appeared at different times treating of the methods adopted for estimating the amount of hydrochloric acid secreted by the gastric mucous membrane in various conditions. It is to this question that the greatest amount of research has been devoted in Germany and elsewhere. During the past year, as in other years, a considerable number of papers have appeared on this subject, but they deal rather with improvements in the processes employed than with results obtained that bear upon disease. It is undesirable, therefore, to give a detailed account of them here. The method which has found most favour is the elaborate one of **Sjöqvist**, modified by **Von Jaksch**, by which the ash of the gastric juice, after a certain process, is titrated by a chromate solution. The method will be found in **Leo's** book, reviewed last year in this article. **Leo**, **Von Pfungen**, and **Boas** have recently criticised this method unfavourably, showing various errors which they assert exist. **Rosenheim** and **Biernachi** nevertheless approve of the method. **Boas** and **Scipione Riva-Rocci** recommend **Hayem** and **Winter's** method—mentioned in last year's issue of this review. This also is disapproved of by **Mintz**, another worker on the subject. *Congo-red*, strongly recommended by many as a test for free hydrochloric acid, is disapproved of, when used for mixed food, by **Dr. McNaught**, whose abstract of the above papers appears in the *Medical Chronicle* of June, 1892, p. 184.

The only paper of the year containing information bearing on

treatment, obtained by the use of these methods, and which therefore it is necessary to notice, is the following :—

Ewald (*Berl. Klin. Woch.*, Nos. 26 and 27, 1892) has summarised his observations upon the conditions under which free hydrochloric acid is absent from the stomach contents. These conditions are :—

1. Gastric carcinoma.
2. Chronic catarrh of the stomach.
3. Severe nervous depression.

Treatment, to be of service, must (1) improve the muscular tone of the stomach ; (2) prevent fermentative changes.

For the first purpose he recommends the use of strychnine, belladonna, and physostigmin. Benefit was also derived from exercise and massage, and good results were obtained from the use of internal faradisation of the stomach. For disinfecting purposes he used resorcin, naphthalin, and the salicylates, especially salicylate of bismuth. He strongly advises the use of benzo-naphthol, in doses of 30 to 70 grains per diem, for this purpose. It is said to be tasteless, non-irritant, and not decomposed in the stomach.

2. Photography and the electric light have also during the year been suggested as means for investigating the state of the stomach in health and disease. Thus :—

Kutner (*Therap. Monatsh.*, 1892, p. 46) has invented a gastro-photographic sound for the stomach, having the diameter and consistence of that usually employed for other purposes. At present, however, its inventor has only used it on a phantom.

Heryng and **Reichmann** (*Therap. Monatsh.*, 1892, p. 128) have used the electric light to illuminate the interior of the stomach, and by that means obtain information as to the condition of the abdominal viscera. Further experiments are necessary before any conclusions can be drawn.

3. The capacity of the stomach.

Forlanini (*Rif. Med.*, Oct. 24, 1891) has suggested a new method of determining the existence of dilatation of the stomach. He distends the stomach with air, by means of an œsophageal sound passed into the organ, using a pressure of not more than 7 or 8 centimètres of water. The air is withdrawn and its volume measured. By using always the same amount of pressure the decrease or increase in the size of the stomach can, it is said, be ascertained.

4. The stomach after gastrostomy.

Ewald (*Deut. Medizinal. Zeitung*, March 24, 1892) has made the following observations on a patient on whom gastrostomy had been performed :—

After the operation the peptic function of the stomach was

entirely destroyed. Owing to deficient movement, the result of adhesions, stagnation of the contents took place. The secretion of hydrochloric acid lasted for ten and a half hours after food, owing to dilatation of the stomach. After washing out the stomach the night before, next morning the organ held a fluid containing free hydrochloric acid and possessed of peptic properties.

II.—ACTION OF DRUGS, ETC., ON THE GASTRIC FUNCTIONS.

1. Condurango and nux vomica.

Wagner (*Archives Générales de Médecine*, Feb., 1892, and *Med. Chron.*, Aug., 1892, p. 330) has investigated the action of condurango and also of nux vomica on several patients, ascertaining the result scientifically by washing out the contents of the stomach after the administration of an Ewald's test-meal. He concludes that :—

1. When administered with food, condurango slightly improves gastric digestion by raising the amount of hydrochloric acid secreted, but it does not produce any lasting change in the gastric secretion. Its influence on symptoms is doubtful, and in two cases hæmorrhage came on during its use.

2. Nux vomica, administered in apparently 30-minim doses of the tincture, was found to increase much more powerfully the amount of hydrochloric acid. It also increased the motor force of the stomach, and its action was maintained some time after its administration was withdrawn.

The effect was explained as being due to an increase in the reflex excitability. Where the hydrochloric acid was already in excess, it acted injuriously ; and where the secretion was abolished, as in chronic atrophic catarrh, it was powerless.

Similar evidence is afforded by the following paper :—

2. Strychnine.

Gamper (*Lancet*, p. 440, i. 1892 and *Khirurgicheski Vestnik.*) has investigated the action of strychnine on the secretion and movements of the stomach. The nitrate of strychnine was used in doses varying from 0·002 gramme to 0·005 gramme, but sometimes increased to 0·015 gramme. The activity of the stomach was increased in all respects.

3. Bitters.

Dr. Paul Terray (*Lancet*, p. 1208, i. 1892) has investigated the action of various bitters on the movements of the stomach. He found that the greatest effect on the stomach movements was

caused by gentian, and after that by cetrarin and condurangin, taraxacum, quinine, and quassia—in the order named. The irritability of the stomach to mechanical stimuli was increased by gentian, taraxacum, quassia, strychnine, and calumba.

Fawiski (*Deutsch. Archiv f. Klin. Med.*, vol. xlvi. No. 34, p. 344), however, has come to the following conclusions with regard to the influence of bitters on the secretion of free hydrochloric acid by the stomach :—

1. That bitters taken before a meal, or on an empty stomach, increase largely the secretion of free hydrochloric acid.

2. That bitters have little influence on the total acidity of the gastric secretion.

3. That they exercise no special influence on the motor or absorptive power of the stomach.

4. That, so far as could be made out, they exercise no influence on the amount of the whole gastric secretion.

5. That no differences could be made out between the influences of various bitters.

4. Alcohol.

Blumenau (*Therap. Monatsh.*, No. 9, 1891) has experimented with alcohol on the secretory, absorptive, and motor activity of the stomach, with the following results :—

1. 25 per cent. or 50 per cent. alcohol introduced into the fasting stomach caused a physiological increase of secretion.

2. Digestion was slowed for the first two or three hours. The free hydrochloric acid, as well as the collective acidity, was decreased.

3. The gastric secretion and the acidity greatly increased in the following two or three hours.

4. The motor and absorptive power of the stomach was weakened.

5. The effects mentioned in paragraphs 2 and 3 were more marked in abstainers than in those accustomed to the use of alcohol.

III.—GASTRIC DYSPEPSIA.

1. General treatment.

In the *Brit. Med. Journal*, 1892, i. p. 283, Mr. Ernest Hart gives a most interesting account of his visit to the wards of Dr. Robin in the Hôpital de la Pitié, Paris, and especially of the views held by the latter on the pathology and treatment of dyspepsia. In all cases coming under his care an examination is made of the gastric juice. A test-meal is given, consisting of

bread 60 grammes, half the white of an egg boiled hard, and 200 grammes of water; and the gastric juice is removed after three-quarters of an hour. The condition of the urine *re* the intermittence of alkalinity, as in the normal condition, is also noted. As an example of Robin's method, a case is quoted where the diagnosis made was undue and continuous secretion of hydrochloric acid. This, it was understood, caused a reflex contraction of the pylorus, and consequently hypertrophy of the muscular walls, together with dilatation of the cavity of the stomach, and undue retention there of food-stuffs and their foul products. Robin therefore attempts to diminish the secretion of acid by the administration of picrotoxin and veratrum viride. Ergotin, too, he gives in order to diminish the supply of blood to the mucous membrane of the stomach, and so control the secretion. In ordinary circumstances he would discountenance the administration of bicarbonate of soda in such cases of hyper-secretion, because it only relieves the symptoms for a short time, and allows the excessive secretion of acid to go on unchecked. But this acrid secretion may sometimes lead to ulceration of the mucous membrane, and then bicarbonate of sodium should be used. In the absence of excessive dilatation he advises giving bicarbonate of sodium, in small doses, about two or three hours after food, since then most of the food has become absorbed, and the mucous membrane is in more intimate and hence dangerous contact with the gastric juice. If there is much dilatation, Robin gives warm drinks, such as infusion of camomile. Finally, to remove obstinate contraction of the pylorus, bromide of potassium is employed, and massage of the abdominal walls in the direction of the muscular fibres of the stomach. As adjuvants to the treatment, absorbent and neutral antiseptic remedies such as sulphur, charcoal, magnesia, prepared chalk or naphthol, may be used.

Where the quantity of hydrochloric acid is deficient, Robin aims in the first place at increasing the reflex power of the mucous membrane and producing vaso-dilatation and stimulation of the nerves of the glands. This he effects by giving tincture of nux vomica and tincture of star-anise a few minutes before food. The tendency to fermentation he here treats by fluoride of ammonium in doses of $1\frac{1}{2}$ to 3 grains. If this treatment does not succeed, he then has recourse to pepsin and dilute solutions of hydrochloric acid. Neurasthenic dyspepsia he combats rather by a general tonic treatment than by one specially aimed at the gastric disorder.

The effects noted from the use of various individual remedies in gastric disorders will be found in the following paragraphs :—

2. Strontium salts.

Laborde (*Journal de Pharmacie*, Sept., 1891) showed that strontium salts did not produce the unpleasant poisonous effects sometimes observed after the use of barium. He found, too, that:—

1. Strontium salts improve the general nutrition, improve the appetite, and increase the body-weight.

2. They are also antifermentive and germicides.

Egasse (*Bullet. génér. de Thérapeut.*, Nov. 30, 1891) has reviewed and controlled all the observations then made with these salts.

Germain Sée (*Sem. Méd.*, Oct. 28, 1891) has experimented with bromide of strontium in affections of the stomach. He found that in thirty-two cases of acid dyspepsia the bromide, given in doses varying between 30 grains and a drachm, between meals, was followed by a marked improvement in all cases, and in some by complete cure. The administration of the drug was followed by a noteworthy diminution in the amount of gas formation. Eight other cases of dyspepsia, due to diminished formation of hydrochloric acid, were also treated by the bromide, with very satisfactory results. In these cases fermentation was completely checked, and the formation of lactic and acetic acids prevented. Three cases of dyspepsia, accompanied by pain and hyperæsthesia of the stomach, were greatly benefited by treatment with the bromide of strontium, but the lactate was useless. The salts seemed to be specially valuable in the gastric affections of patients suffering from Bright's disease and heart disorders.

Coronedi (*Practitioner*, July, 1892, p. 24) adds his testimony to the beneficial effect of these salts. He used the bromide, and considers that it is best given in the solid form, in doses of 30 grains twice a day. Owing to the deliquescent nature of this salt it should be wrapped in wafer-paper shortly before being used. In opposition to Sée, he finds that it is of great value in gastralgia, and he considers that its action is not due to the bromine contained in it, nor does free bromine become liberated from it in the stomach. The drug was specially valuable as a remedy for vomiting.

3. Nitrate of silver solution in gastric catarrh.

Forlanini (*Rif. Med.*, Oct. 24, 1891) has proposed a new treatment for chronic gastric catarrh. The stomach is first washed out with a solution of sodium chloride (2 per 1,000) previously boiled. This is withdrawn, and half a litre of a solution of nitrate of silver (2·5 to 5 in 1,000, according to the tolerance of the patient) is introduced. This is made to come into thorough contact with the walls

of the stomach, then withdrawn, and a second quantity introduced. Finally the stomach is again washed out with the sodium chloride solution. This procedure is repeated daily. Forlanini found that this treatment diminished both gastric catarrh and dilatation.

4. Resorcin.

Menche (*Ctbltt. f. Klin. Mediz.*, No. 21, 1891) has found resorcin of great service in gastritis. He gives it with hydrochloric acid, opium, rhubarb, bicarbonate of soda, and syrup, the mixture containing 1 per cent. of resorcin; or the drug may be given alone, as a powder, in doses of $1\frac{1}{2}$ to 7 grains. The heartburn, vomiting, and pain soon disappear, and appetite is greatly improved. Menche also got favourable results in dilatation of the stomach and carcinoma, but considers the drug contra-indicated in gastric ulcer.

5. Peroxide of hydrogen.

A. N. Jakorleff (*St. Petersburg Inaugural Dissertation*, No. 109, 1892) has found as the result of experiments with hydrogen peroxide:—

1. That it increases the general acidity of the gastric juice and the proportion of free hydrochloric acid.

2. That the proportion of lactic acid is diminished, and that the acid finally disappears in the later stages of digestion.

3. That it markedly intensifies the digestive power of the gastric juice.

4. That, except in cases of hyperacidity, the administration of the drug is followed by improved appetite, by cessation of pain, and by a decrease in the production of gas, etc.; and, further, that under its use the action of the bowels becomes more regular.

6. Solanin in painful diseases of the stomach.

Desnos (*Sem. Méd.*, March 23, 1892) has used solanin in painful affections of the stomach, with considerable success. The drug proved a useful substitute for morphine, and sometimes succeeded where morphine had failed. The drug was given in pills, the usual dose being 5 centigrammes, half an hour before food. Not more than 15 centigrammes were ever given in the twenty-four hours.

7. Electricity.

Einhorn (*Berl. Klin. Woch.*, No. 23, 1891) has devised a new method of applying electricity to the stomach walls. The wire, enclosed in a thin india-rubber tube and ending in a metal head, is passed into the stomach by being swallowed with the help of one or two glasses of water. The other electrode is placed on the epigastrium or back, or simply held in the hand.

Tweedy (*Dublin Journal of Med. Science*, Feb., 1892, p. 104,

and *Practitioner*, May, 1892, p. 379) advocates the use of this method in dilatation and in chronic gastric catarrh.

8. Treatment of chronic gastric affections by washing out the stomach.

D. H. Attfield (*Practitioner*, p. 108, Feb., 1892) classifies the conditions most suitable for lavage as follows:—

1. Insufficient muscular power of stomach.
2. Spasm of the pylorus.
3. Dilatation of stomach depending on organic obstruction or other cause.
4. Some cases of cancerous disease.
5. Dilatation of stomach with a tendency to sacculation.
6. Obscure cases of obstinate vomiting and gastric pain.

A full account of the methods employed for lavage of the stomach will be found in the little work by Debove and Rémond which has appeared during the year. However valuable the procedure may be, it has its risks, and they are noted in the following article by Dr. Soltau Fenwick, which is well worthy of serious consideration:—

9. The dangers of washing out the stomach.

Dr. Soltau Fenwick (*Practitioner*, April, 1892) has summarised these as follows:—

1. Convulsions and tetany.
2. Syncope and sudden death.
3. Perforation of the stomach wall.
4. Hæmorrhage.
5. Injury of the œsophageal or stomach wall.
6. Poisoning by means of the antiseptic used.

He urges careful selection of the cases to be subjected to this treatment.

IV.—NERVOUS DISORDERS OF THE STOMACH.

At the Balneological Congress held in Berlin (*Therap. Monatsk.*, 1892, p. 199) Weissenberg read a paper on the treatment of these affections. He considers it to be of all importance that the cause should be discovered if possible, such as anæmia, syphilis, tænia, or disorders of the uterus. The most obstinate cases are those where there is a widely-spread disease of the nervous system, either organic or functional. Arsenic, quinine, ergotin, belladonna, physostigma, and phosphorus are not to be trusted. The bromides are more to be recommended. Ewald has recommended chloral, especially where there is hyperæsthesia of the

stomach, and opium if there is irritation of the intestines. The latter is valuable for the relief of meteorism and flatulence. Ewald, too, gives a warning that saline purgatives should not be used, and hence a course at Carlsbad, Marienbad, or Kissingen should not be prescribed. Cocain also is often of value. Oser, too, recommends atropin as a narcotic in such cases. Weissenberg, however, is of opinion that more good can be done by means adapted to strengthen the body and mind, such as change of climate, abstention from sexual intercourse, gymnastics, hydrotherapeutics, and a non-irritant diet. Sea-bathing and mountain and forest air are specially desirable. Mountain air is best for those of sedentary habits, while sea air and bathing are most suitable where there is pronounced disturbance of the intestinal nerves, constipation, loss of weight, and mental depression. Salt baths, electricity, and massage are also of use.

In the discussion which followed Boas thought that a strengthening diet was better than so-called bland food. Ewald recommended that all food by the mouth should be stopped when there was much hyperæsthesia of the mucous membrane of the stomach, nutrition being maintained by enemata. Lindemann had found the local application of electrical massage of benefit.

V.—GASTRIC ULCER.

Dreschfeld (*Med. Chron.*, vol. xvi., No. 2, p. 105, 1892) has discussed the treatment of gastric ulcer. He considers rest in bed an essential point. As regards diet, he withholds all food by the mouth for some days (three to eight) in those cases which show great irritability of the stomach, and feeds the patient by nutrient enemata. As an enema he prefers one composed of two raw eggs with 2 oz. of beef tea, and the occasional addition of 1 oz. of brandy. The thirst may be assuaged by small quantities of warm water or barley water, or small pieces of ice may be sucked. Food, when given by the mouth, should be administered every two hours, in small quantities, and in a fluid form. This should be continued for several weeks (three to six), and then the diet may be cautiously increased in quality and quantity. Alcohol is best avoided. Pain may be treated by poultices to the abdomen. Dr. Dreschfeld gives an infusion of senna pods as an aperient. If this fails, a simple or glycerine enema is most useful.

He advocates the use of larger doses of bismuth and bicarbonate of soda than are usually given. Nitrate of silver is a valuable remedy for the relief of pain. He strongly advises the

adoption of a rigid plan of treatment, as it is more likely to be followed by a complete cure, and there is less danger of the occurrence of hæmatemesis or perforation.

[Undoubtedly the rigid plan of treatment is the best, but unfortunately patients will seldom submit to it in the earlier stages of the disease. An attack of hæmatemesis is often the best thing that can happen to a patient suffering from gastric ulcer, since it frightens her, compels her to keep her bed, and then proper means may be adopted to cure the disorder.]

VI.—HEADACHE OF GASTRIC ORIGIN.

Westphalen (*Berlin. Klin. Wochenschr.*, No. 37, 1891) has treated cases of headache associated with slight dyspepsia by means of hydrochloric acid, with complete success. He supposes that the headache is toxic in origin, due to absorption of ptomaines from the stomach, which are capable of exerting a detrimental influence only when there is a deficiency of free mineral acid in the stomach.

He reports five cases treated in this manner with good results, and further states that the headache can be prevented by the administration of the acid after articles of diet the ingestion of which had previously been followed by headache.

VII.—TETANY OF GASTRIC ORIGIN.

Bouveret and Deric (*Rev. de Méd.*, Feb., 1892) have reported twenty-three cases of tetany associated with dyspepsia due to gastric hypersecretion. Three forms of tetany occurred:—

1. Contracture of the extremities, the most common form.
2. A generalised form, of serious import.
3. A form resembling epilepsy with clonic and tonic convulsions.

The tetany proved a serious complication, death occurring in sixteen out of twenty-three cases. The most probable cause is an intoxication due to retention of the stomach contents.

VIII.—VOMITING.

1. Blistering over the vagus.

M. J. Kenny (*Brit. Med. Journal*, p. 16, i. 1892) has reported a case of vomiting after pregnancy which, after being unsuccessfully

treated by the ordinary methods, ceased entirely after the application of a blister over each vagus in the neck.

2. Hydrochloric acid.

Alkiewicz (*Lancet*, p. 1047, i., 1892; *Nowing Lekanskje*) found great benefit in the treatment of vomiting from small and frequently-given doses of hydrochloric acid. The acid was given in a well-diluted form.

[Carbolic acid will be found one of the most powerful agents for checking vomiting. It may be given in a two-minim dose, made into a pill with breadcrumb; or, if this does not succeed, five minims may be given with mucilage.—R. M.]

IX.—HÆMATEMESIS.

In the course of remarks upon the effect of emotion in producing hæmatemesis, the treatment of this symptom in Rendu's clinique at the Hôpital Necker is given in the *Journal de Médecine*, April 10, 1892, p. 256. Rendu prescribes ice internally and externally. If the patient is collapsed, injections of ether or caffein are given; but if there is no great weakness, morphia is administered subcutaneously. When hæmorrhage has ceased, a powder consisting of equal parts of magnesia, bismuth, and carbonate of lime is prescribed as an anodyne and antiseptic. Opiates, too, are given, but no astringents. Milk diet is rigidly adhered to, since beef-tea is often an irritant under such conditions.

[After hæmatemesis it should be considered a rigid rule to give no food by the mouth for several days. Nutrient enemata are quite sufficient to maintain the vitality.—R. M.]

X.—THE ASSIMILATION OF FATS.

1. Influence of brandy on the assimilation of fats.

Protopopoff (*The Pract.*, No. 3, p. 491, 1891, and *Med. Chron.*, vol. xvi. No. 1, April, 1892) has obtained the following results:—

(1) The influence of brandy on the assimilation of nitrogen is very different in individual cases. In four cases assimilation was diminished; in two cases assimilation was increased.

(2) The influence of brandy on the assimilation of fats showed similar results.

(3) The quantity and appearance of the stools were unaltered during the time brandy was given.

(4) The body-weight increased in all the cases experimented on.

2. Effect of deep inspiration on the assimilation of fat.

Dr. A. Pavpertoff (*Lancet*, p. 651, i. 1892, and *Pract.*, No. 6, 1892) has experimented on the influence of deep inspiration and expiration on the absorption of fat. His results show that a slight increase in the assimilation of fat takes place while deep respiration is going on.

XI.—INTESTINAL DYSPEPSIA.

(*Boston Med. and Surg. Journal*, March, 1892, p. 272.) The editor of the journal, in a leading article, calls attention to the fact that digestion is not completed in the stomach, and therefore disorders of the process may take place in the intestine. This is frequently overlooked in practice. The symptoms most frequently complained of by patients suffering from intestinal dyspepsia are flatulence and pains, occurring some few hours after meals, while the primary digestion is completed without trouble. Diarrhoea, too, may follow. The flatulent distension of the intestines must not be confused with dilatation of the stomach. It can commonly be located in the coils of the small intestine or in the colon, while the stomach is not distended. In intestinal dyspepsia it is principally the starchy and saccharine articles of food that give trouble, though at times albuminoid matters may also be passed into the intestine from the stomach in an imperfectly-digested state, and there cause disturbance. Intestinal dyspepsia, then, is mainly due to defects or perversions of the bile, pancreatic juice, or intestinal juice, or to atony of the intestinal muscular coat; though it is difficult, or well-nigh impossible, in any given case to determine the exact fault in the mechanism, and consequently therapeutics must be symptomatic rather than ætiological. The directions as to treatment contained in the article are arranged under the following heads:—

1. Dietetics.

The diet should contain a maximum of albuminoids, such as meat, eggs, and fish, and a minimum of carbohydrates and fats. A diet of raw meat reduced to pulp is often very successful. It should be eaten well seasoned, with a little bread, but without vegetables. Thin slices of underdone roast meat, fresh broiled fish, raw shell-fish, soft-boiled eggs, and boiled ham, may also be allowed. For drinks—dilute soups, broths, and watery solutions

of meat extracts are recommended in preference to milk, which is too liable to fermentation. Malt liquors, puddings, and gruels are to be avoided. The diet alone will frequently cure the patient, since his dyspepsia has often been induced by an overburdening of the digestive organs.

2. Antiseptics.

Combinations of chalk, bismuth, magnesia, salol, salicylate of soda, and aromatics are often beneficial. Thus, after each meal, a patient may take a powder consisting of 5 grains each of prepared chalk, magnesia, and salol, or 5 grains each of salicylate of bismuth and naphthol, while a little nux vomica or calumba may be added to each of these. Turpentine, too, is recommended by some.

3. Eupeptic remedies.

Malt extracts may be given with food; but preferable to these is liquor pancreaticus, in teaspoonful doses, with 15 grains of bicarbonate of soda, given two hours after a meal, as recommended by Sir William Roberts.

4. Purgatives.

Purgatives are often useful, but are not to be given as a matter of routine. Only the milder laxatives are recommended—such as rhubarb, senna, aloes, sulphur, cascara, or magnesia. Favourite combinations are—(1) equal parts of powdered rhubarb and cardamom seeds—dose, a teaspoonful; (2) sulphur, cream of tartar, and magnesia, of each equal parts (Germain Sée); (3) Dujardin-Beaumetz recommends liquorice powder; (4) Dr. G. B. Wood, an infusion of half an ounce of calumba, half an ounce of ginger, a drachm of senna, and a pint of boiling water, of which a wineglassful should be given three times a day; while (5) the pill of aloin, strychnia, belladonna, and ipecac is often excellent.

XII.—STENOSIS OF THE DUODENUM.

Although only remotely influencing treatment, a paper by Boas (*Deutsch. Med. Wochenschrift*, 1891, No. 28, and *Therap. Monatsh.*, Aug., 1891, p. 449) on the diagnosis of stenosis of the duodenum is of interest. Cases occur at times where many of the symptoms of stenosis of the pylorus are present, but where also many anomalous conditions are observed. Boas shows that in such patients the possibility of stenosis of the duodenum should be thought of, and lays down laws for its fine diagnosis. Strictures of the pylorus, or of the part of the duodenum above the entrance of the bile and pancreatic ducts, may be considered together, and

differentiated from stricture below the bile-papilla. In the latter class of cases there is constant presence of bile and pancreatic secretion in the stomach, and there is no dilatation of the stomach, no products of fermentation, *sarcinæ*, or yeast-cells in the stomach contents. Also the stools will be clayey in character, and the urine will contain di-acetic acid and acetone, with a high percentage of indican, though these latter indications are uncertain. If pancreatic secretion is absent from the contents of the stomach, it may be presumed that the stenosis of the duodenum is due to a tumour or some inflammatory affection of the pancreas, which has interfered with the functions of the organ. On the other hand, a faecal smell in the fluid removed from the stomach would show that the stenosis is in the lower part of the small intestine.

The treatment recommended by Boas is to wash out the stomach, thus to remove the bile which has arrived there, and cause the stomach to resume its natural secretion. When the stenosis is increasing, and endangering life, a surgical operation is called for.

XIII.—DIARRHŒA.

1. Bilberries.

Winternitz (*Wiener. Med. Presse*, No. 31, 1891, and *Therap. Monatsh.*, Sept., 1891, p. 507) recommends a decoction of bilberries in diarrhœa. Dried bilberries are to be boiled with water until they attain a thin, syrupy consistence. The decoction is to be filtered, and of the filtrate one to three cupfuls are to be taken daily.

2. Lactic acid.

M. G. Shtchegoleff (*Meditzinskoïë bhozrenië*, No. 13, 1891) experimented with lactic acid in the treatment of diarrhœa. In a majority of the cases the amount of lactic acid taken daily did not exceed 2 drachms.

He has come to the conclusion that lactic acid is a valuable anti-diarrhœal remedy, and most useful in the treatment of simple intestinal catarrh, and the diarrhœa of phthisis.

S. P. Tchernysheff (*ibid.*, p. 52) has also experimented with lactic acid, and has come to the same conclusions as M. Shtchegoleff.

3. Tincture of calumba.

Schultz (*Therap. Monatsh.*, Feb., 1892, p. 62) shows that tincture of calumba is of value in the treatment of diarrhœa, even in that the result of phthisis. This was pointed out 130 years ago (see *Med. Chronicle*, April, 1892, p. 38) by Dr. Percival, of

Manchester. Large and long-continued doses sometimes cause irritation of the bowel.

4. Sulphate of magnesium.

Bradbury (*New York Med. Rec.*, July, 1892, p. 43) draws attention once more to the use of sulphate of magnesium in catarrhal inflammation of the digestive tract. He quotes several cases which resulted in rapid cure after the administration of large doses of the salt, and asserts that small doses do more harm than good. The greater the dose, the less griping is produced by it; this, in Dr. Bradbury's opinion, is due to the fact that it causes merely a copious discharge of fluid from the mucous membrane, without affecting the muscular coat; and probably the more fluid is poured out, the sooner is the offending matter washed away.

In Britain the use of sulphate of magnesium in digestive disorders, and especially in typhlitis and intestinal obstruction, has been alluded to frequently in recent years, and the drug is of great value in well-selected cases. From clinical observation it would appear to have no effect on the muscular coat, and hence it is not a desirable remedy in habitual constipation. Flatulent distension is a common symptom after its use.

5. Carlsbad water as a rectal injection.

Pollatschek (*Wiener. Med. Wochenschrift*, No. 23, 1891) has recommended the use of warm Carlsbad water, as a rectal injection, in the treatment of chronic diarrhœa. He injects at first 200 grammes, and gradually raises the quantity to 500 grammes. The temperature of the water he gradually increases at successive injections, beginning at 38° C. and going up to 43° C. At first the injection is given once a day, later it is administered twice daily, and the fluid is to be retained as long as possible.

6. Plombières waters.

Battenhut (*Brit. Med. Journal*, p. 808, i., 1892) has treated catarrhal enteritis with great success by the Plombières waters. He considers the most important agent in the treatment is the "douche ascendante," in which the intestinal mucous membrane is subjected to a continuous irrigation at a not too high pressure. The waters employed are those known under the names of the "Source des Dames" and the "Source Savonneuse."

7. Subcutaneous injection of salt solution in diarrhœal collapse.

Demiéville (*Rev. Méd. de la Suisse Romande*, No. 1, 1892) has used an injection of salt solution, of the strength of 6 in 1,000, with beneficial results, in the treatment of the collapse produced by acute gastro-enteritis in infants. The solution must be boiled

before use, and perfect antiseptics must be observed in the performance of the operation. The solution must be warm when injected, and in the case reported (a child aged four and a half months) the quantity used was ziv . The injections were made into the thighs, and were followed by gentle massage. The child improved at once, and reaction was established in a few hours.

XIV.—INFECTIVE DIARRHŒA.

Lesage (*Journal de Médecine*, Feb. 10, 1892, p. 120) has investigated bacteriologically the broncho-pneumonia which so frequently complicates severe diarrhœa. The latter, as is now known, is often accompanied by the presence of the bacterium coli, and by many is thought to be due to this germ. Lesage has found the same germ in the lung in great abundance, and also in the air of the sick-room. He hence recommends that each patient should be isolated, and their dejections sterilised.

K. Ortmann (*Berl. Klin. Woch.*, Aug. 17, 1891) has reported a case of diarrhœa associated with the balantidium coli, which was in all probability the cause of the diarrhœa. Quinine exercised most influence on the disease, and the drug was given by the mouth as well as by the rectum.

Marfan and Lion (*Sem. Méd.*, Oct. 28, 1891) have recorded two cases of dysenteric enteritis not accompanied by pyrexia. Both patients died from collapse, resembling that seen in cholera. The post-mortem examination showed ulceration of the large intestine, similar to that found in true dysentery; but in both cases cultivations made from the mesenteric glands, pericardial fluid, and heart-blood yielded the bacterium coli commune only, and in a pure state.

XV.—INTESTINAL ANTISEPTICS.

1. Benzoate of naphthol β .

Yven and Berlioz (*Sem. Méd.*, Oct. 28, 1891) have treated naphthol β with benzoyl chloride, and obtained a body which is benzoate of naphthol β . This is soluble in alcohol or chloroform, and but feebly so in water or ether. In the intestine it breaks up into naphthol β and benzoic acid.

Its action is as follows:—

1. It is slightly poisonous.
2. It is markedly antiseptic.
3. It encourages diuresis.

4. It can be given in large doses, but it is advisable to give it in small doses frequently repeated.

Mules (*Brit. Med. Journal*, p. 442, i., 1892) has investigated the action of naphthol in the above conditions, and concludes:—That in non-specific diarrhoea of children and adults, associated with offensive stools, naphthol acts rapidly, both in restraining the looseness of the bowels and in deodorising the ejecta.

2. Ethereal hydrogen sulphates.

A. Rovighi (*Int. Physiol. Chem.*, xvi. 20—47) has come to the following conclusions:—

1. That the quantitative estimation of the ethereal hydrogen sulphates in the urine is a trustworthy criterion of the amount of putrefactive change in the intestine.

2. Oil of turpentine and camphor, in large doses, lessen the putrefaction in the dog's intestine.

3. In the human being these drugs have not the same efficacy, whether given by the mouth or by the rectum.

4. Tannin clysters lessened very slightly only, the amount of ethereal hydrogen sulphate in the urine in a case of entero peritonitis.

5. A saturated solution of boric acid injected into the intestine is more efficacious, but the absorption of the acid is dangerous.

6. Carlsbad and Marienbad waters first increase and then markedly diminish the amount of ethereal hydrogen sulphate in the urine.

7. Kephir ($1\frac{1}{2}$ litre per diem) markedly lessens intestinal putrefaction.

3. Salol.

Gley (*Soc. de Biologie*, April 9, 1892) has shown that salol, given to dogs from which the pancreas has been removed, can be absorbed from the intestine without the intervention of the pancreatic juice. It would therefore appear that it can act as an intestinal disinfectant without the intervention of the pancreatic juice, which splits it up into phenol and salicylic acid.

XVI.—DYSENTERY.

Professor Bahadurji (*Brit. Med. Journal*, p. 898, ii., 1891) gives details of a plan of treatment adopted by him in dysentery by which the mortality was reduced from 5 or 10 per cent. to practically *nil*. His treatment was based on three main indications:—(1) The avoidance of all irritants and stimulants; (2)

the production of intestinal antiseptics ; (3) the administration of alkalies for the purpose of counteracting the acidity of the blood.

For this purpose the diet was restricted to milk-arrowroot, which was non-irritating, and the following drugs were administered, viz. :—trinitrate of bismuth, Dover's powder, and soda.

Lardier and Pernet (*Journal de Médecine*, June 10, 1892, p. 438) have given the treatment applied by them in a severe epidemic of dysentery at Rambervillers, which was due to the infection of the drinking water by dysenteric stools. The usual hygienic measures were taken, and the intestine washed out with antiseptic fluids. Internally, also, antiseptics were administered, and especially salol, in combination with tincture of tolu, syrup of coings, and extract of thebaia.

A dose of this mixture was given every hour, so as to let the patient take about 45 to 60 grains of salol in the day.

The best effects, however, were obtained by administering iodoform together with powdered opium in cachets, giving five or six cachets in the day.

For muco-sanguineous stools with tenesmus, injections of boric acid were used with success ; but the best results were obtained from suppositories containing cocain and opium.

AMŒBIC DYSENTERY.

Councilman and Lafleur (*John Hopkins Hosp. Rep.*, vol. ii., Dec., 1891) have come to the following conclusions as the result of their investigations into those forms of dysentery in which amœbæ are found in the stools and tissues after death.

1. That amœbic dysentery, etiologically, chemically, and anatomically, should be regarded as a distinct disease.

2. That the amœba dysenteriae is the causative agent, from its constant presence in the stools, from the characteristic anatomical lesions, and from the inoculation experiments of Kartulis.

3. That the amœbæ found in the stools differ in some respects from those found in other forms of dysentery. The onset and duration of the disease are variable ; there are intermissions and exacerbations ; it is liable to become chronic, and to be followed by anæmia.

4. The ulcers in the colon are characteristic. They are produced by infiltration of the submucous tissue, and by necrosis of the overlying mucous membrane the edges are undermined. The intestines contain no pus.

5. That it is more commonly followed by abscess of the liver, and sometimes of the lung, than are other forms of dysentery.

6. That the disease is widely spread (it occurs most commonly in the tropics); and that it is the same disease that is known under the name of tropical dysentery.

XVII.—INTESTINAL OBSTRUCTION.

1. Injections of water.

A favourite method of treating desperate cases of cæcal obstruction, either with or without typhlitis, is by forcibly injecting large quantities of warm water through the O'Beirne's tube and by means of the stomach-pump. This is not always a safe proceeding. It requires care to pass the rigid tube through the sigmoid flexure, when the abdomen is distended, without injuring the wall of the bowel. Again, the forcible injection of the fluid causes peristalsis of the gut, and the fluid is often forced back by the side of the tube without penetrating much farther than its end. Also, when in favourable cases the fluid does seem to reach the cæcum, its mere contact with the fæcal mass does not suffice to disintegrate the latter, and the procedure is without effect. On account of these considerations **Maréchal** (*Presse Médicale Belge* and *Journal de Médecine*, July 25, 1892, p. 539) has suggested that, instead of the usual apparatus, the soft tube and funnel used as a syphon should be employed, as in washing out the stomach. He shows that it is not at all necessary to pass the tube farther than just above the internal sphincter of the anus. No force is to be used beyond the mere pressure of the column of water, produced by elevating the funnel; and in order that the syphon should act it is necessary that the tube and the intestine should form a continuous canal. This is effected by the mucous membrane closing gently round the tube below its end. **Maréchal** finds no difficulty in thus pouring several litres of fluid into the bowel. The injection is so gentle that no peristalsis and no pain are evoked. Again, when the bowel is full of fluid, the funnel is alternately raised and lowered, so as to produce a to-and-fro motion in the fluid; and this is more effective in loosening the fæcal block than the forcible injection. The operation is so easy and free from danger that it can be performed by a nurse or by the patient himself. **Maréchal** recommends that a tube of only moderate calibre should be used.

Kussmaul in 1884 recommended washing out the stomach in cases of ileus, and references to this method of treatment will be

found in former issues of the "Year-Book." The exact indications, however, for the employment of this means are uncertain, and Aufrecht (*Therap. Monatsh.*, p. 421, Aug., 1891) has investigated these. He shows that the treatment is specially desirable in two conditions :—

1. When the stomach is distended, and vomiting has been entirely absent or has ceased. This occurs, according to Aufrecht, in about one-fifth of the total number of cases, and he attributes the absence of vomiting to the stomach being displaced by the intestines, and the œsophageal opening thereby constricted.

2. When there is fæculent vomiting. By the use of the tube the stomach is cleared of its foul contents, and resorption of them prevented.

Aufrecht also recommends that morphia should be administered—subcutaneously in every case. The injection of large quantities of water he has found to be successful in only a small number of cases. Of puncture of the intestines he speaks even less favourably.

[The writer is of opinion that puncture may at times be of great service. The bowels are distended with gas much more than with fæces, and the extreme distension so paralyses the muscular coat that the various means employed to induce peristalsis are rendered useless.

Dr. Ogle some years ago strongly recommended puncture. In some cases it is delayed too long, when an earlier employment of it might have given other remedies subsequently employed a better chance of success. The writer believes he has seen instances of this. Yet the method is undoubtedly dangerous, and peritonitis may follow its employment. But when the case is desperate, the practitioner must use his judgment as to whether the immediate danger warrants the possible risk; and in any case, only the finest needle and cannula must be used.]

Amongst other methods of treatment recommended during the year may be mentioned the following :—

2. Olive oil.

Mitchell (*Therap. Monatsh.*, 1892, p. 56) has employed large quantities of olive oil as a means of overcoming obstruction of the bowels. He gave more than two ounces and a half every two hours, or even oftener, without producing vomiting. One patient took about 18 ounces in the night, and another took a litre in a few hours. An action of the bowels ensued in three to twenty-four hours after the commencement of the treatment.

3. Injections of tobacco-infusion.

D. W. Jones (*Philad. Med. News*, vol. lix., No. 22, 1891) has

reported a case of faecal intestinal obstruction treated successfully by tobacco.

A tobacco enema was made by adding half a drachm of plug tobacco to half a pint of boiling water; this was rapidly cooled, and injected into the bowel. In twenty minutes a copious evacuation of the bowel was produced, and an uninterrupted recovery followed.

[As is well known, the enema of tobacco is a dangerous remedy, from its tendency to produce dangerous collapse; and since heart-failure is the immediate cause of death in many cases of intestinal obstruction, I cannot but think that the above method of treatment had better be avoided.]

4. Electricity.

M. Semmola (*Brit. Med. Journal*, p. 380, i., 1892) has given the details of a case of intestinal obstruction due to nervous causes, which was successfully treated by the application of the constant current.

5. Metallic mercury.

Dr. Richter (*Lancet*, p. 1227, i., 1892, and *Deutsch. Med. Woch.*, May 19, 1892) treated a case of acute intestinal obstruction with metallic mercury, with a successful result.

The patient was a woman aged forty-nine. Fifty-two ounces of metallic mercury were administered, and in a few hours five copious stools were passed. The patient recovered rapidly.

XVIII.—A NON-NAUSEATING CASTOR OIL.

Ständke suggests (*Therap. Monatsh.*, p. 103, 1892) that the taste of castor oil may be entirely hidden in the following way:—Let the finest oil be treated several times with hot water, and then to it be added saccharin until it becomes a thin syrup; finally it is to be flavoured with cinnamon and vanilla.

XIX.—INTESTINAL PARASITES.

1. Male fern.

Eich (*Deutsch. Med. Woch.*, 1891, No. 32, and *Therap. Monatsh.*, 1891, p. 506) calls attention to the poisonous symptoms which may develop after the administration of large doses of the ethereal extract of filix mas. In one case occurring at the Cologne Hospital, symptoms of acute tetanus ended in death, and in three others serious results ensued.

This poisonous action of filix mas has been noticed only during the last few years. Formerly the drug was supposed to be perfectly harmless, and the dose of it administered was

increased, especially when its action upon other parasites than *tæniadæ*, such as the *anchylostomum duodenale*, was desired. In 1888 Quirll instituted experiments upon rabbits with an extract of filix mas, and obtained from these animals symptoms similar to those observed in man. They consisted of irritative phenomena, showing themselves in the intestines; of cramps, and general paralysis, leading to death.

During the year a further contribution to this question has appeared from Prevost and Binet (*Revue Médic. de la Suisse Romande* and *Therap. Monatsh.*, 1891, p. 601). They come to the conclusion that:—

1. In warm-blooded animals even large doses of the extract seldom give rise to dangerous symptoms, on account of the slow absorption from the stomach.

2. After subcutaneous or intra-peritoneal injection death occurred from paralysis of the heart and respiration.

3. The principal symptoms seen were paralysis and early rigidity of various muscles, both of the voluntary muscles, and also those of the heart and intestine, giving rise to vomiting, cough, and rigors. Urgent dyspnœa may result from the paralysis of the respiratory muscles. Paralysis of the heart is usually the cause of death; the heart is found contracted and unexcitable after death, and the vagus loses its irritability only in the late periods. The peristaltic movements of the intestines are abolished.

4. Direct application of the poison to the conjunctiva annuls its sensibility, like cocain.

5. The urine shows a reducing action, not due to sugar, but to some of the constituents of the extract which are eliminated by the kidneys.

6. The central-nervous system is only secondarily affected in warm-blooded animals, but is soon paralysed in frogs.

7. Leeches showed similar symptoms.

8. Filix extract abolished the oxidising action of living protoplasm on guaiacum tincture.

From this last experiment it is concluded that the extract produces its symptoms by a special action on protoplasm.

Poulsson, again (*Archiv. f. exp. Pathologie* and *Therap. Monatsh.*, 1891, p. 601), working in Schmiedeberg's laboratory, finds that the anthelmintic and the poisonous actions of filix mas are alike due to the same principle, filicic acid, which exists in two modifications. It is only slowly absorbed from the intestines, and the poisonous symptoms do not appear until twelve to twenty hours after its administration by the mouth. The action is, however,

more rapid when the acid is dissolved in olive oil. Poulsson thinks that filicic acid would be preferable to the ethereal extract as a medicament, since it is easily soluble in the intestines, but only with difficulty absorbed. He recommends, too, that if the extract be given, it should not be combined with castor-oil but with some other purgative.

Crequy (*Annales de Médecine*, 1891, No. 45, and *Therap. Monatsh.*, 1892, p. 103) suggests that this should be calomel.

[I have no experience in the use of filix mas against other parasites than tæniæ, and for these worms I do not think it at all necessary to use such large doses of the extract as are given in Germany. Not more than 1 drachm of the liquid extract should be given at night, when the patient has fasted for twelve hours at least; and the next morning half an ounce of castor oil. Given in this way I think there is no danger of producing poisonous symptoms.]

2. Thread-worms.

Minerbi (*Annales de Médecine*, 1891, No. 49, and *Therap. Monatsh.*, 1892, p. 103) recommends naphthalin for the cure of thread-worms. He used it as an enema, and for children prescribed—

Naphthalin	...	...	...	...	15 to 22 grains
Olive Oil ...	...	...	...	...	℥iss to ℥ii

for one enema; while for adults larger doses must be used, such as

Naphthalin	...	...	...	...	75 to 90 grains
Olive Oil ...	...	...	...	...	℥ii to ℥iii

Mr. Christopher Heath (*Brit. Med. Journal*, ii., 1891, p. 1300) calls attention anew to a point in the treatment of thread-worms—namely, that they are not to be eradicated by enemata alone. Their main seat is the cæcum, not the rectum, and they must be attacked in this situation by purgatives.

[It is desirable also to give santonin.]

XX.—CIRRHOSIS OF THE LIVER.

Millard has given a further communication to the Académie de Médecine (*Journal de Médecine*, April 10, 1892, p. 283) on the subject of cure of cirrhosis of the liver by milk diet and purgatives. One patient shown by him came under treatment three months after the onset of symptoms, and had then great ascites, distended subcutaneous veins, a large smooth liver, scanty urine, and

œdema of the legs. During treatment abundant diuresis set in, and the patient rapidly improved. The cause of the cirrhosis was abuse of alcohol. Millard considers that cure may be obtained if the disease is not too far advanced, and if the liver, still in the stage of hypertrophy, diminishes under treatment. In remarking on these cases, **M. Rendu** considered that there was a difference to be observed between cirrhosis with large liver, and that with atrophied liver; and he thought it was not yet demonstrated that the hypertrophy was only a first stage, always followed by atrophy. He asked if we might not be here dealing with two essentially different processes, and he thought the form in which the liver was hypertrophied was most favourable for treatment, since the hepatic cells were less damaged.

XXI.—GALL-STONES.

1. Olive oil.

J. Swift Walker (*Brit. Med. Journal*, p. 1063, i., 1892) has reported three cases of gall-stones which were successfully treated with 1-drachm doses of olive oil, and 1 pint of a carbonate of soda solution (ʒii to the quart) given daily.

The patients were also subjected to a warm bath three times a week.

The committee of the therapeutic section of the Philadelphia Policlinic Medical Society (*New York Med. Journal*, Oct. 3, 1891) reported, as a result of an investigation into the use of olive oil in the treatment of gall-stones, that positive relief was afforded in 93 per cent. of the cases.

The committee found also that large doses of the oil are not necessary, and, further, that cotton-seed oil is as efficacious as olive oil. The beneficial effects appeared to be produced chiefly by the increased excretion of bile, and not by the solvent action of the oil on the biliary concretions.

Dr. Goodhart (*Brit. Med. Journal*, p. 219, i., 1892) treated five cases of gall-stones by means of olive oil, with good results. The oil is extremely digestible, and may be taken with mashed potato or spinach or salad, or with some kinds of fish. The theory as regards the action of the oil is that fatty acids form after its administration, and these keep the cholesterin in solution, and may even redissolve it after precipitation.

2. Glycerine.

Ferrand (*Journal de Médecine*, April 10, 1892, p. 281) has given glycerine in many cases of gall-stones, and considers it an excellent cholagogue, and to have the power of softening and

dissociating the calculi. He considers that olive oil, when given in large doses, only produces its effects when it is transformed in the intestine into glycerine. He gives to a patient, during an attack of biliary colic, 20 to 30 grammes of glycerine with a similar quantity of chloroform water, during the twenty-four hours. This amount can be taken in two or three doses, or, if the stomach cannot bear such a quantity, in spoonfuls, about every hour. Between the attacks, to prevent the formation of gall-stones, the patient should take each morning 1 to 3 teaspoonfuls of glycerine in a small glass of some alkaline water.

3. Salicylate of sodium and salol.

Strisower (*Therap. Monatsh.*, 1892, p. 436) has obtained such good results in treating gall-stones by salicylate of sodium and salol that he finds it unnecessary to use morphia. Nevertheless during the colic he administers 8 grains of antipyrin every half-hour. As soon as the colic has ceased, he gives the same quantity of salicylate of sodium three or four times a day. The attacks of colic become fewer, and finally disappear entirely.

[I have found the salicylate of soda a valuable drug in cases of catarrhal icterus and in slight attacks of hepatic colic, due probably, not to gall-stones, but to inspissated bile. As stated in a former issue of the "Year-Book," the rationale of its administration lies in its power of rendering the bile more watery.]

(See also "On Gall-stones and their Treatment," by Mr. Mayo Robson, mentioned in the bibliography.)

XXII.—HEPATIC NEURALGIA.

At the Congress of Medicine held at Leipsic in April, 1892, Fürbringer (*Therap. Monatsh.*, 1892, p. 418) drew attention to a form of liver-colic which may lead to wrong diagnosis and treatment. In the preceding year he had had under his care four patients who suffered from symptoms of cholelithiasis, and also passed by the bowel certain bodies that resembled gall-stones, and even had a mulberry-surface and facets. On careful examination, however, these proved to be pear-seeds, which had been swallowed in a compôte. Two of the patients had also pains resembling gall-stone colic, but really due to a "neuralgia of the liver." Of this disorder Fürbringer had seen six cases. As points in the differential diagnosis of this disorder from gall-stones he lays down the following:—

(1) The commencement of the attack in both disorders is the same.

(2) The nervous liver-colic is generally found in young, anæmic, and hysterical patients, together with other visceral neuralgias, such as pleurodynia, renal and cardiac neuralgia, etc. The knee-jerks, too, are excessive.

(3) The exciting cause is usually not evident. Only rarely does it appear to be errors of diet, over-exertion, mental emotion, or menstruation.

(4) The attacks show a certain periodicity.

(5) Jaundice and enlargement of the liver are absent.

(6) Tenderness of the liver is always present.

(7) No matter how long the complaint has lasted, no feverish or inflammatory symptoms relating to the liver are ever observed

The importance of the diagnosis also is reflected on the treatment. Carlsbad is distinctly contra-indicated, since it usually brings about an increase of the disorder rather than a good result. A rational anti-neurasthenic treatment is called for, and, according to Fürbringer, soon effects a cure. Fürbringer also associates with nervous liver-colic those cases where peritoneal adhesions, the result of the passage of gall-stones, give rise to visceral neuralgia.

[The disorder described is, I think, rare. I met with one case during the last year which in every respect conformed to the clinical picture laid down by Fürbringer. In reference to this case I may give another warning as to the diagnosis. The patient, a young lady, had suffered for some years from pains of the character described, but determined as to their access by menstruation. They had therefore been supposed to be due to some ovarian or uterine trouble, but the pain and tenderness were distinctly hepatic. In this case, however, some digestive trouble seemed likely to be benefited by a stay at Carlsbad, and the "cure" there, helped no doubt by the effects of change of scene, was most beneficial to the patient.—R. M.]

[For many of the foreign extracts in the above article the Reviewer is indebted to the weekly "Epitome" of the *British Medical Journal*.]

DISEASES OF THE KIDNEYS, DIABETES, ETC.

BY CHARLES HENRY RALFE, M.A., M.D. (CANTAB.), F.R.C.P.,

Physician to the London Hospital, etc.

I. Synopsis.

The actual contributions to renal and urinary therapeutics have been slight this year, and this is especially the case in the consideration of the treatment of the different forms of albuminuria. Among the chief contributors this year is **Dr. Hingston Fox**, who, in a paper read before the Hunterian Society on *albuminuria* in relation to life assurance, gave a classification of the causes which lead to this condition, which will be useful to bear in mind when such cases present themselves for treatment, as showing how varied the causes are, and how important it is to determine the right one in a given case before entering on a definite line of treatment. **Dr. Howship Dickinson** early in the year contributed a thoughtful paper on *renal dropsy* to the Royal Medical and Chirurgical Society, which will have an important bearing on the treatment of that condition. With respect to the treatment of *diabetes*, the communications have been more numerous. **Professor Ebstein** has introduced a new vegetable albumen into notice (*aleurinat*), which contains only a small percentage of carbo-hydrate, and which, if its manufacture can be maintained in its present state of purity, will doubtless replace gluten entirely in the making of diabetic bread. **Dr. Ralfe** read a paper at the Medical Society discussing certain questions relating to the treatment of diabetes—one concerning the risks of relaxing *dietetic restrictions* in cases of confirmed and progressive diabetes, and the equal dangers of a purely proteid diet in patients enfeebled by protracted disease in inducing a tendency to coma. The other was with regard to the rules which should regulate us in the administration of *opium* in this disease. The subject of *pancreatic diabetes* is still attracting a considerable degree of attention, **Minkowski** and **Hédon** having both shown that a portion of the pancreas transplanted under the skin of the

abdomen served in protecting the animal from the onset of diabetes when the organ was extirpated, so long as the transplanted portion kept its vascular attachment. Dr. Williamson, in an exhaustive review of a tabulated series of a hundred cases of diabetes in which the pancreas was affected, remarks that if we could be sure of our diagnosis, we might ingraft portions of healthy pancreas as a means of cure in this form of diabetes. Dr. Reynolds has contributed a sensible article on the treatment of *diabetic coma*, by advising more attention to be paid to the impending conditions; and at quite an early stage to encourage the patient to take large quantities of fluid, with considerable doses of alkali. Dr. Hirschfeld draws attention to an interesting form of diabetes, in which there is a marked failure of the assimilation of fat and albumen. One interesting point in the year's work has been the greater attention paid by physicians to the medical treatment of *cystitis*. Dr. Tyson contributes a paper dealing with the various conditions that induce catarrh of the bladder, and specially commends the use of sandal-wood oil. Dr. Mansel Sympton, dealing more especially with the form associated with ammoniacal decomposition, speaks highly of salol as an antiseptic. The work of the year must not be concluded without a reference to Sir William Roberts's valuable contribution to renal therapeutics, in his Croonian Lectures on uric acid, gout, and gravel. The observations in this section are limited only to a consideration of the treatment of gravel; but the whole work is worthy of close study. It is thoroughly practical in character, and instead of claiming a ubiquity for this pathological product, like some writers, he rigidly assigns to it a position less ambitious, and only recognises its power for evil so far as it is manifested by its insolubility and tendency to deposit in the joints and kidneys.

2. Albuminuria, Classification of.

Dr. Hingston Fox (*Lancet*, Dec. 12, 1892) read a paper, at the Hunterian Society, based on the records of 282 cases of albuminuria, with special reference to this condition on life assurance. Only two of the cases were women, and the ages varied from fourteen to sixty-five years of age; average 32·8 years. He thus classifies the cases:—(1) *Organic renal disease*, eight cases (this class is, of course, uninsurable). (2) *Permanent albuminorrhœa*, one case. This patient, aged thirty-one years, had an excellent record of family and personal health; was ruddy, well nourished, heart and lungs apparently sound, urine had a specific gravity ranging from 1·015 to 1·024, contained 1·2 per cent. (Erbach) of albumen. There was no visible organic deposit, nor was sugar

present. No cause for the albuminuria could be assigned. Two years after this examination he was seen again; he was then married, and in excellent health; but Dr. Fox found on this occasion a few fine hyaline casts in the urine. This case was not insured. (3) *Albuminuria of dense urine*, twenty-two cases. Some of these cases contained crystals of uric acid and oxalate of lime. In other cases the urine was simply concentrated, specific gravity 1·020 up to near 1·040, over-acid and pigmented, depositing crystals later on. Such urines are common in confined city life, especially in persons with gouty family histories, but mainly when muscular and lung exercise do not bear their proper relation to the ingestion of food. When the albumen is more than a mere trace, or the crystals are large, Dr. Fox would refer the case for treatment by diluents; otherwise, and in the entire absence of other defects, such lives may be recommended. In connection with this class may be mentioned the albuminuria which attends glycosuria. (4) *Albuminuria of unstable circulation*, twenty cases. In these cases there seems to be a loosely-built circulatory apparatus, with variations of the blood tension, both general and local; the pulse is often compressible, and the urine often deficient in acidity. The trace of albumen which usually attends this condition does not notably increase the risk in such lives, which must be estimated with due regard to the circulatory instability. Under this head may be included the so-called albuminuria of adolescents, cyclic albuminuria, hepatic albuminuria, etc. (5) *Toxic albuminuria*, eight cases. Here the cause has reference to articles of food, drugs, or poisons. Among these cases Dr. Fox mentions tea-tasting in three instances causing albuminuria. When the albumen is more than a trace, or the cause very slight, it is a sign that there is an undue readiness on the part of the kidney to pass albumen, and this, taken in connection with other circumstances, may lead us to rate up the life a few years. (6) *Albuminuria of strain or shock*, three cases. Severe muscular exercise, mental strain, shock of cold. This group, if the albumen is above a trace and the shock slight, requires consideration and the addition of a higher rate. (7) *Vesical, urethral, and vaginal albuminuria*, five cases. If sure that these discharges are not associated with grave disease of the urinary organs or complicated with kidney disease, there is nothing to hinder the acceptance of the life. Bladder catarrh would necessitate delay and a second examination. (8) *Unexplained albuminuria*, seventeen cases. In most of these only a trace of albumen was present, whilst nearly all would probably, with fuller knowledge, be assigned to one of the classes above stated. When a small trace of albumen

is unexplained, and all the other elements of life are sound, it need be, Dr. Fox thinks, no obstacle to assurance, but would be so if other points were doubtful.

3. Albuminuria of pregnancy.

Dr. Duff (*Journal Amer. Med. Association*, June 18, 1892) advises the internal administration of chloroform in cases of puerperal albuminuria. In one case, that of a primipara about eight months advanced in pregnancy, with her leg and feet swollen, passing little urine, containing one-eighth albumen, he ordered 10 m of chloroform every six hours. Two days later the quantity of urine increased, and the headache which she previously complained of was less. The chloroform was increased to 15 m. In seven days the anasarca and headache had practically disappeared, and she was passing 78 oz. of urine in the twenty-four hours. She was safely confined at due term.

4. Renal dropsy.

Dr. Howship Dickinson (*Lancet*, April 30, 1892), in a paper read before the Royal Medical and Chirurgical Society, points out that the agencies under which fluids pass through the capillary walls are : (1) *Filtration* or transudation under pressure, acting both on colloids and crystalloids—albumen as well as salts ; (2) *diffusion* or osmosis, acting on the salts, and not albumen ; (3) *secretion* or action on the part of the capillaries, which has been suggested, but is still hypothetical. The products of the first two agencies must be different from each other ; and the third very probably, if found to exist, distinct from both. In nephritis dropsy ensues early and is abundant, arterial tension is increased, and hypertrophy of the heart sets in early. The connection between the œdema and increased arterial tension may be ascribed to some condition of the capillaries, which, owing to some abnormality of the blood, prevents its free passage and promotes transudation. In chronic nephritis, however, an opposite condition is noticed, for with the increase of the arterial tension the dropsy lessens. When in long-standing cases the heart becomes dilated, the yielding of the ventricle leads to increase of dropsy, and often pulmonary apoplexy. Pulmonary apoplexy Dr. Dickinson considers in these cases as a simple and direct result of advanced renal disease, quite independent of any lesion of the mitral valve. The distinctions and differences between cardiac and renal dropsy are thus defined :—In cardiac dropsy there is diminished absorption without any presumption of increased exudation, or not to any appreciable extent. In renal dropsy there is increased exudation without any relative diminution of absorption. Both are related through modifications of the blood-pressure—in the one from obvious

obstruction to the blood return ; in the other from some obstructive condition in the capillaries, attended with some enhanced exudation from them. [The therapeutic lessons to be derived from Dr. Dickinson's conclusions are—to increase the arterial pressure, and to remove the obstructive conditions that exist in the capillaries. Whilst admitting the soundness of most of Dr. Dickinson's reasoning, it may be pointed out that sufficient prominence has not been given to the mechanical obstruction offered by structural changes in the kidneys themselves, apart from the constriction that exists in the smaller renal vessels. Thus, in acute nephritis, when the kidney is gorged with blood and the tubes blocked with desquamating and disorganised epithelium, the secretion of urine is exceedingly diminished. In granular contracted kidney a similar obstacle to the free flow of urine occurs in the strangled glomeruli and the bared and compressed renal tubules. So long, however, as the heart remains undilated, sufficient pressure is maintained to overcome this resistance in the kidney. For this purpose, in the dropsy of chronic nephritis we give cardiac stimulants, such as digitalis, strophanthus, caffein, or diuretin, instead of, as in acute nephritis, administering saline diuretics and diluents.]

5. Renal dyspnœa.

Dr. Graham Steel (*Med. Chron.*, vol. xv., p. 8) attributes the dyspnœa of chronic Bright's disease principally to cardiac failure, in opposition to the theory that it is due to uræmia. He advocates a low dietary, and, therapeutically, digitalis and strophanthus, and, as a diuretic, caffein ; for the immediate relief of the dyspnœa, the careful use of morphia hypodermically. O. Israel (*Berlin. Klin. Woch.*, No. 19) states that not only in the left side of the heart does hypertrophy occur, but also in the right ventricle. Besides, the larger arterial trunks lose their elasticity, and the smaller vessels dilate and their muscular walls become impaired. [This impairment of elasticity may be one of the reasons that the nitrites are often disappointing in their action on peripheral resistance in advanced cases of Bright's disease.]

6. Morphine in uræmia.

Dr. W. H. Washburn (*Philad. Medical News*, vol. lix., No. 2, 1891) maintains that the administration of morphine either in acute or chronic uræmic intoxication does not add to any dangers already existing—a fact which is sufficiently proved by other observers. (*Vide* "Year-Book," 1890, p. 94, § 6.) The effects of morphine upon the nervous system are to relieve pain and relax spasm. Acting on the circulatory system, it produces at first acceleration of pulse-rate, followed by slowing and increased fulness, thus

raising the blood-pressure. With regard to the flow of urine, some difference of opinion exists, but it may be generally admitted that the flow of urine is generally increased owing to its action on the blood-pressure and relaxing the local arterial tension. When the flow of urine is diminished, it is usually owing to diminished sensibility of the bladder. Dr. Washburn does not claim for the drug any curative action; but that it allays distressing symptoms, and allows the physician to resort to other measures for the relief of the uræmic condition. [It may be well to recall the fact, when administering morphine in uræmic conditions, that the treatment should be commenced with quite small doses—not to surprise, as it were, the kidney—for after a time the patient becomes more tolerant of larger doses. I have found the use of morphine *epidermically* a very safe and effectual method of employing the drug, its absorption being less rapid than when taken by the mouth or used hypodermically.]

7. Diet in diabetes.

Professor W. Ebstein (*Medical Chronicle*, vol. xvi., No. 6, p. 364) remarks that pure or entire albumen food cannot be tolerated for a long time by the diabetic patient. The more severe the disease, the greater the danger from a pure albuminous diet. This danger we recognise by the appearance of aceto-acetic acid in the urine. On commencing treatment, the physician too often introduces at once the so-called diabetic diet, not considering whether he has to do with a serious or light form of the disease. Professor Ebstein, however, never introduces the diet suddenly, but gradually, and all the more slowly the more serious the disease. His method is to enforce the diabetic diet the lighter the case is; but with the more serious patients he employs a nutrition which is richer in albumen, quite gradually. He advocates the use of *aleuronat*, a new vegetable albumen, so that the patient is not obliged to take flesh albumen alone. Supposing the patient consumes daily 250 grammes of aleuronat bread (which contains 50 per cent. of vegetable albumen), he incorporates 80 grammes in this manner. If now the patient consumes, besides, 300 grammes of lean beef, which contains 18 per cent. of animal albumen, he has received 134 grammes of albumen, flesh and vegetable. In the portion of 250 grammes of aleuronat bread, the patient consumes no more than 70 grammes of carbohydrates; and since most physicians allow 100 grammes of carbohydrates for their diabetic patients, 30 grammes of carbohydrates may therefore be taken in other forms. The remaining 262 grammes of carbohydrates required to make up the 362 grammes required physiologically for the demands of a healthy man must be made up by fat. Professor Voit

requires for a healthy individual 90 grammes of fat. If, therefore, the diabetic takes daily about 200 grammes of fat, he will generally satisfy his need for carbon. If, however, he can take a still larger amount of fat, he will be able to limit still more the quantity of carbohydrates. The best kind of fat should, of course, be employed, and one advantage of aleuronat bread is that it can carry a large quantity of fat in its consumption.

This preparation of wheat gluten was first proposed by a German chemist, **Dr. F. Hundhausen**—the method, however, is a secret. It is a dry yellow powder, almost without taste and odour, and consists chiefly of vegetable albumen. Chemical analysis proves it to contain 80 per cent. of vegetable albumen, and only 7 per cent. of carbohydrates. It contains also a small quantity of bran. It has been proved that the vegetable albumen of aleuronat can be equally utilised in the organism as the animal albumen of flesh. Besides, it is the cheapest albumen, and very appropriate for the nourishment of man. With regard to the importance of aleuronat in the dietetic treatment of diabetes mellitus, it may be stated that, as a powder, it can be employed in all cases in which common flour is used by non-diabetic persons. Aleuronat is also of special value in a baked state. Diabetic patients require a peculiar kind of aleuronat bread, which must be free from sugar, and must contain more vegetable albumen than common bread, which has only 6 to 7 per cent. of gluten. Professor Ebstein has succeeded in making aleuronat bread containing as much as 30, 40, and 50 per cent. of aleuronat, and thinks it possible to make it even with a greater percentage. The use of more aleuronat is, however, not to be desired, since such a strong bread does not correspond with common bread, and is not long tolerated by the patient. It is, therefore, not necessary or useful to offer patients a bread containing merely albumen. Aleuronat bread contains much fat, and in this way assists the patient to bear with the reduction of carbohydrates.

In a paper read at the Medical Society of London **Dr. Ralfe** (*Lancet*, April 23, 1892) submitted the question whether in cases of *confirmed** diabetes running a protracted course any relaxation from the usual dietetic restriction might be permitted. Dr. Ralfe thought this form of diabetes presented two aspects: (1) An alimentary diabetes, which can at first be entirely controlled by diet; but gradually this control is lost, and sugar reappears in the urine in spite of all restriction. This form is most commonly associated with a constitutional taint of some

* Cases of transient and gouty glycosuria, and intermittent forms of diabetes in which assimilation is for a time restored, were not considered in this paper.

kind, though it sometimes, but less frequently, is found in cases of neurogenic origin. (2) General diabetes, in which, from the earliest onset, a restricted diet fails to remove entirely the sugar from the urine, whilst the glycosuria is out of all proportion to the food (of all kinds) digested. This form is common in cases of neurogenic origin, and is specially characteristic of pancreatic diabetes.

What probably happens in the two forms of diabetes we are considering is, that in the milder and alimentary form the power of assimilating starch and sugar is only lost as far as the liver is concerned ; but after a time, perhaps from the passage of sugar from the liver into the circulation, the tissues lose the power of transforming glycogen into energy or storing it up as fat ; or, as some are now endeavouring to show, the blood loses its glycolytic or sugar-destroying power, owing to the absence of a ferment which is said to be normally furnished chiefly by the pancreas, but also by other glands. It is then that the diabetes may be said to become general. Out of a total of sugar excreted by the urine, a portion still remains removable by abstinence from starchy and saccharine food, but as the case progresses the proportion between this removable sugar and that which is not affected by a strict diet becomes more and more marked. In short, Dr. Ralfe thinks the difference between the *removable* and *non-removable* sugar in a case of diabetes is one of considerable value for the purpose of prognosis ; for any sudden increase in the proportion of the latter, though there may not be any actual increase in the total of sugar excreted, is always indicative of an exacerbation of the disease.

He then proceeds to point out the well-known susceptibility of these cases of diabetes to relapse on the resumption of ordinary diet, and also to state that when strict diet is again resumed the proportion between the sugar removable by diet may be less, but the non-removable sugar is increased. This fact tells conclusively against any relaxation of the diet in this form of diabetes, whilst the extreme susceptibility to the minutest particle of starch, etc., when the glycosuria is still controlled by absolute restriction is equally against the resumption of a mixed diet in this stage of the disorder.

Dr. Ralfe next considers whether the advantages gained by a strict adherence to an absolute diet of proteid substances by diminishing the amount of sugar in the blood, and so checking the tendency to a further lowering of the assimilative processes in the body and controlling the extreme diuresis, may not be gained at too great an expense to the patient's well-being, and that some benefit may be derived in other directions by permitting a slight

relaxation from too rigid a proteid dietary, and whether its too long continuance is not in itself a danger by causing the formation in excess of bodies such as the morbid products of proteid metabolism. To this it may be answered that certain tribes live almost exclusively on meat from year's end to year's end; as do hunters for very long periods at a time without appearing to be in any way injuriously affected by diet. But the power of assimilation of healthy active savages or vigorous hunters is very different from the feeble diabetic. In scurvy—a disease, as Dr. Ralfe has endeavoured to show, brought about by the withdrawal of alkaline salts and the increase of acid salts—so long as the patient remains vigorous, active, and cheerful, the disease is kept at bay; but the moment the vital powers are lowered from exposure, fatigue, or anxiety, then all the consequences of the diminished alkalinity of his blood are experienced. So in diabetes, though there is no actual withdrawal of the alkaline salts, there is with the flesh diet a positive entrance of an increased amount of acid salts into the body. These possibly at an early period of the disease, whilst the patient is still fairly vigorous, are eliminated by the kidneys; but when the bodily powers begin to fail, they accumulate to a dangerous extent. Added to this is the fact that with increased feebleness the power of digesting proteid material is lessened, and consequently the risk of the formation of toxic bodies in the intestine is increased. If, therefore, we are forbidden even to permit a partial resumption of carbohydrate food, and admitting the risk attendant on a proteid diet, what measures are we to adopt to ensure the patient's nutrition with safety? Dr. Ralfe suggests two:—The one is in the regulation of the amount of proteid food * as the assimilative powers flag. There is very little doubt that diabetic patients are often encouraged to eat more animal food than they require or can assimilate; and the greatest improvement follows a reduction in the amount of meat, as also in a change from beef and mutton to fish, poultry, and such light food as tripe, calf's head, etc. A Paris physician of some eminence called attention to this point some years since, and stated that during the siege of Paris he noticed that his diabetic patients made considerable improvement, which he attributed to their having their flesh diet greatly curtailed. The importance of taking plenty of green vegetable food should be insisted on, to say nothing of watercress and other green salads. The second measure to improve assimilation and promote metabolism, is massage, both general and over the abdominal viscera. When thoroughly carried out, it effects a wonderful improvement in the patient's condition,

* See Professor Ebstein's remarks at head of § 7.

in the restoration of appetite, improved digestion, relief of constipation, and a general increase of vigour.

8. Morphine and codeine in diabetes.

Dr. F. Gori (*Deutsche Med. Zeitung*, Nov., 1891) observes that though both morphine and codeine exert a favourable influence on diabetes mellitus, yet whilst the former may cause the glycosuria to disappear the same cannot be said for codeine. The effect of morphine is always noticed, but more so when the patient is on an absolute meat diet. The effect of codeine, and probably that of morphine also, though with less intensity, persists after the administration of the drug has been suspended. Morphine also exerts its good effect when the patient is on mixed diet—not only by removing the glycosuria, but by increasing the body-weight, and also by the feeling of well-being in the patient. Both drugs, besides their influence on the existing excretion of sugar, have an inhibitory action, as they prevent the increase or return of sugar. This action is decidedly stronger in the case of morphine, and gives valuable aid when the diet is relaxed. Neither drug disturbs the general nutrition, but exerts a beneficial influence, as is seen in the increase of the body-weight. Dr. Gori is of opinion that the diabetic condition favours a tolerance of both drugs.

9. Opium in diabetes.

Dr. Ralfe (*Lancet*, April 30, 1892) remarks that with a drug which is acknowledged as the only reliable therapeutic agent available for the treatment of diabetes, it is strange no definite rules have been formulated with regard to the administration of opium or its derivatives. Some give it quite early; some wait till the disease is no longer removable by diet alone; others postpone its administration till quite a late stage, or only employ it when complications such as boils, carbuncle, or gangrene occur. Some give it freely, others sparingly. Dr. Ralfe therefore submits the following rules for consideration:—

1. With regard to the period when opium or its derivatives should be commenced, he has come to the conclusion that whilst the glycosuria can be completely removed by diet the drug should not be administered, for this reason, that when it has once been administered, and then left off, on resuming it a much greater quantity is required to effect the same result than if even opiates had been continued throughout.

2. With regard to its mode of administration, the most decided results follow in diabetes when the drug is administered by the mouth, so that any other method need not be entertained. With respect, however, to the most effective period for administration, whether immediately before meals, so that it may quickly enter

the portal circulation, or during digestion, when the assimilative processes are most active, he has found that administration about an hour after a meal has a greater effect in restraining diuresis than when taken on an empty stomach, that not much difference is effected on the sugar excretion ; but that the dose taken shortly after food has one great advantage, especially when large doses of the drug are taken, of not disordering the stomach, or of causing nausea or impairing digestion, as when taken fasting.

3. As regards the best preparation of the drug. Though both codeine and morphine restrain the sugar excretion and the diuresis, still patients on whom the test has been made inform us that they experience a greater satisfaction when some preparation of crude opium has been added to either alkaloid. This can be done by combining liquor opii with acetate of morphia in solution, increasing or diminishing one or the other as circumstances seem to require ; or else employing some of those extrapharmacopœial preparations which contain morphia as well as some other derivative of opium. Besides, diabetics often exhibit individual peculiarities as regards the different preparations of opium, which ought to be studied.

4. In fixing the dose, at first it is important to find out the patient's own capacity for the drug, which varies greatly in different individuals, and discouragement should not be felt if the patient complains, or is in any way made uncomfortable on first commencing opium or its preparations. Each patient has his proper dose, and as soon as that is ascertained the full benefit of the drug will be felt. The real difficulty lies in determining the right time for increasing the dose, and, when this becomes large, to decide whether we should continue to increase it further. As a rule, we err on the side of too much caution, and often fail to obtain the full advantage of the effects of the drug by holding our hands when a certain effect has been produced. As soon, therefore, as the glycosuria ceases to be absolutely controlled by dietetic restrictions, Dr. Ralfe suggests that opium should not only be given in doses that sensibly affect the excretion of the sugar, but should be increased till either they entirely control the glycosuria, or no further reduction in the amount of sugar passed is obtained on increasing the dose. When this point is reached, we should recognise that the drug has been pushed to its fullest sugar-restraining capacity, and that the dose need not be increased till a further exacerbation of the disease takes place, always assigning as a limit to its increased use the point at which it ceases any longer to affect sugar excretion. How far and how long the use of opium or its derivatives may be carried without causing injury

to the patient there is little means of saying. Diabetics are, as is well known, extremely tolerant of the drug, and it is as impossible to judge of them as regards the effects of opium as it is possible in the case of morphia *habitués*. Cases in which patients have taken $3\frac{1}{2}$ grains daily for over two years are quoted by Dr. Ralfe, and others in which as much as 6 to 7 grains have been administered for some months, with apparent benefit.

10. Pancreatic diabetes.

Dr. Minkowski (*Beilage zum Centralblatt f. Klin. Med.*, No. 25, 1892). In the "Year-Book" for 1892 we quoted the experiments of Minkowski and Von Mering, showing that total extirpation of the pancreas caused diabetes mellitus in a dog. Minkowski's latest contribution is to show how this occurrence of diabetes may be prevented by previously transplanting a piece of the gland under the skin of the abdomen. So long as this transplanted piece of gland had a vascular union diabetes did not occur, even when the whole of the pancreas was removed. He also draws attention to the rapid disappearance of glycogen from the liver, and that lævulose can still be burnt up in the organism, and advocates its larger use in the diet of diabetics. M. E. Hédon (*Gaz. Méd. de Paris*, Aug. 13, 1892) performed a similar experiment, the descending portion of the pancreas being grafted under the skin of the abdomen, attached to the abdominal cavity only by slender vessels. The grafted portion, in spite of complete absence of external secretion, does not waste, and preserves its structure completely. Now if a dog having such a graft has the whole of the pancreas left in the abdomen extirpated, no glycosuria follows. But, on the other hand, if the pancreatic graft is extirpated (the pancreas having been previously removed when the graft was made), very intense glycosuria follows. The experiments of Minkowski and Hédon are brought forward to show that the diabetes is induced by the cessation of the pancreatic function. Dr. R. T. Williamson (*Med. Chronicle*, vol. xv., p. 367) records two cases of diabetes mellitus in which the pancreas was affected. Both patients were emaciated. In one case the pancreas had undergone interstitial inflammatory wasting; in the other, fatty degeneration. Dr. Williamson gives a tabulated list of 100 cases of diabetes associated with disease of the pancreas, and urges the experimental evidence already before us as proving the connection between the two. Could we be really sure, and able to diagnose disease of the pancreas with certainty, we might, as Dr. Williamson suggests, ingraft portions of healthy pancreas under the skin in the manner described by Minkowski and Hédon.

11. Diabetic coma.

Dr. Reynolds (*Medical Chronicle*, vol. xiv., p. 338) insists, as no case of recovery from diabetic coma is known, on our diagnosing *impending* coma in its earliest stage, and dealing with it so as to prevent unconsciousness coming on. The chief points to be noticed in the early stage are : a distinct sense of increased illness, loss of appetite, weakness, slight drowsiness, pain in the left hypochondrium, laboured respiration—expiration being particularly prolonged—acetone reaction in urine, and albuminuria. The treatment advocated is absolute rest in bed, purgation in moderate degree, slight relaxation of diabetic diet, large doses of citrate of potash, and very large quantities of fluids taken internally ; these fluids to consist of milk, lemonade, tea-water or barley-water, a variety being employed to induce the patient to take a sufficient total quantity, which should amount to nearly a gallon in twelve hours. Dr. Reynolds records two cases in which this treatment has proved successful—one a male patient with the usual signs of impending coma. The injection of an intravenous saline solution was first thought of, but as the patient could still be roused, Dr. Reynolds thought he could effect the entrance of a large amount of saline fluid into the blood by the stomach. He was, therefore, ordered an aperient, and to drink during the night at least a gallon of fluid, together with an ounce every hour of a mixture containing 60 grains of citrate of potash. As a result the next morning he was better, and the treatment was continued another twelve hours, the citrate of potash being, however, diminished in quantity. In three days all symptoms had passed away, the sugar had increased in quantity, the odour had disappeared from the breath and urine, and the albuminuria had ceased. The second case was similar to the first, and the result equally satisfactory. [The administration of alkaline fluids by the mouth has long been employed in the early stages of diabetic coma, but not to the extent practised by Dr. Reynolds. Dr. Dickinson (*vide* “Year-Book,” 1891, p. 146) has succeeded in proving that a very large quantity (22 pints) of a dilute saline fluid can be passed into the body with—up to a certain point—no dangerous results ; but the practice of intravenous injection to such an extreme amount should be reserved till the period of unconsciousness has set in ; and if we are fortunate enough to see the patient in the early stage, and the patient can still swallow, Dr. Reynolds’ method commends itself as wise and rational, since the slower entrance of the fluid through the vessels of the stomach has probably a more effective therapeutic influence than when more suddenly poured into the circulation. Dr. Reynolds does not

mention what effect the injection of eight pints of fluid in twelve hours had in increasing the amount of urine passed. Is the improvement noted due to dilution of the poison or to increased elimination ?]

M. Koelnitz (*Bull. Gén. de Thérap.*, Sept. 8, 1892) relates a case of diabetic coma which he treated after the method of Stadelmann. He prepared 150 cc. of the physiological saline solution, with the addition of .8 grammes of bicarbonate of soda and .5 grammes of neutral carbonate of soda. He injected this solution till the urine became alkaline. The patient on whom the experiment was made was forty-three years of age, and his urine contained from 3 to 7 per cent. of sugar. Suddenly coma supervened, with rapid pulse without fever, and the injection was made into the vein of the left arm. When only a portion of the injection had passed, the patient commenced to move and answered questions. This favourable state lasted about fifty minutes, but the patient after some hours died. Death appeared due to a complication with influenza, but the rally speaks, M. Koelnitz thinks, favourably for the method.

12. Wild bilberry in diabetes.

Professor Winternitz (*Med. Press and Circ.*, April 20, 1890) directs attention to a domestic drug which, he thought, had been neglected, and which he had used successfully in several renal cases. Dr. Weil, of Berlin, also testifies to the good effects obtained by the use of a decoction of bilberry leaves in a case of saccharine diabetes. Hitherto the remedy has been a favourite one among country people. The leaves are pulled before the berries are ripe. Two handfuls of the leaves are infused in two litres of water, and boiled down to half. No suggestion has been made regarding its therapeutic action, but an analysis, it is hoped, will confirm the popular view of its efficacy.

13. Jambul in diabetes.

Dr. Hildebrandt (*Berlin. Klin. Wochenschr.*, Jan. 4, 1892) confirms the statement that jambul has an antifermentative effect on plant diastase, and on other sugar-forming ferments, as found in saliva, pancreatic extract, and blood serum.

Drs. Raimondi and Rossi (*Gaz. Méd. Lombard.*, Jan. 16, 1892) gave jambul to a female patient aged 58. On restricted diet, though her condition was ameliorated, the sugar remained abundant. Jambul was then administered, as much as 12 grammes daily being given. The sugar during its continuance sank to one-half, but when it was abandoned it again rose, to fall again on its resumption.

14. Diabetes, New clinical form of.

Dr. F. Hirschfeld (*Zeitsch. f. Klin. Medicin*, iii.-iv., 1891) draws attention to a certain class of diabetics in which the assimilation of fat and albumen is very much diminished, and which, he concludes, is a distinct clinical form of diabetes. Whether the disturbance affects equally, or in some degree, both the fats and albumens is not determined with certainty, but the lessened assimilation of albumen seems evident. These cases appear to be marked by frequent attacks of colic at an early stage of the disorder, which are not noticed later on, but polyuria is absent in a marked degree; the urine is relatively of high colour, and contains much sediment. The motions are pale-coloured, but contain no perceptible amount of fat. Disease of the pancreas would point to some relationship of this failure of assimilation to diabetes.

15. Diabetes insipidus cured by an attack of measles.

Alfred Harvey, M.B. (*Birming. Med. Rev.*, March, 1892, p. 166), relates the case of a child who, after a fall down stairs, became polyuric. She first came under observation on April 19. She then weighed 30 lbs., and was passing 14 pints of urine daily. The treatment adopted was liquid extract of ergot, Parish's syrup, and cod-liver oil. The disorder, however, continued, with slight fluctuation, till November, the daily average of urine passed being about 170 oz., when measles broke out in the house, which the patient contracted. On the first day the urine fell to 47 oz., and on the two following days it further diminished to 15 and 11. The urine continued to diminish till December 10, when only $1\frac{1}{2}$ oz. was excreted; the next day, however, the amount was 15 oz. After this it became normal in quantity and quality.

16. Antipyrin in diabetes insipidus.

Dr. Voniovitch (*Bolnitchnaia Gaz. Botkina*, Nos. 26-29, 1891). In the "Year-Book" for 1889, p. 86, § 9, an account of the treatment of diabetes with antipyrin is given from the reports of Drs. Huchard, Eichhorst, and Bucquoy, and the drug has been employed for the same purpose successfully since. Dr. Voniovitch relates the case of a man aged 33, who, during an attack of influenza, was attacked with thirst and profuse diuresis, passing as much as 13 litres of urine daily. Antipyrin in $\frac{1}{2}$ -gramme doses was given every two or three hours, in courses of six, ten, and seven days; three and twenty-three days intervening between the first and second, and the second and third course. The patient was discharged cured fourteen days after the drug had been finally discontinued, and was reported still well a year afterwards. M. Gaudez (*Lancet*, vol. ii., p. 326, 1891) has found antipyrin useful, in

incontinence of urine in children, in doses of 1·2 to 4 grammes, in divided doses every two hours.

17. Cystitis, Medical treatment of.

Dr. James Tyson (*Practitioner*, Feb., 1892) contributes an interesting paper on a condition that rarely calls for purely medical treatment. *Acute cystitis* is even less commonly met with by the physician than the chronic form, whilst its treatment is far simpler and more satisfactory. Rest in bed is a primary and essential condition. Leeches to the perinæum should be applied more frequently than they are. Poultices in the same region and over the abdominal region are always useful, whilst a brisk saline cathartic should never be omitted. The urine should be kept dilute and copious, and Dr. Tyson prefers libations of cold water (to which may be added 15- to 20-grain doses of citrate or acetate of potash, and also 2-drachm doses of spirits of nitrous ether) to the old-fashioned mucilages of flax-tea. When there is much pain and straining, a suppository of opium ($\frac{1}{2}$ to 1 grain) is indispensable. Iced water injected into the rectum acts very efficiently in allaying pain and irritation. *Chronic cystitis* is more difficult to manage, and the indications that should direct our therapeutic measures should be with reference to—(1) The constant presence of urine with irritating qualities on an inflamed mucous membrane; (2) the difficulty of treating the inflamed surface; (3) the products which by their decomposition make the urine still more irritating by exciting in it ammoniacal changes. To fulfil the first indication, the urine must be rendered less irritating by dilution. In acute cystitis we can hardly go wrong by giving alkaline diuretics, but in the chronic form of the disease the urine is often alkaline, and the addition of alkalis favours ammoniacal decomposition. Dr. Tyson recommends instead the administration of *benzoic acid* in a 5-grain compressed pill, given at least six times in the day. The second indication, to medicate the inflamed surface, may be accomplished either by the internal administration of medicine or by the injection of medicated liquids into the bladder. With regard to the first, Dr. Tyson passes over the majority of infusions, decoctions, and fluid extracts of buchu, pareira brava, uva ursi, triticum repens, as absolutely useless, but relies solely on the balsams. Of these he specially commends the use of *sandal-wood oil*. He advocates its administration before meals, and has given it in capsules, as many as twelve a day. The topical application of medicaments to the bladder also fulfils the third indication—the getting rid of decomposing matters from the bladder. Dr. Tyson, instead of commencing with 2 oz. as a measure for the first injections, as recommended by Sir Henry

Thompson, takes 4 oz. After a few injections of plain tepid water he usually adds some medication. His favourite is *salicylate of sodium*—a drachm to the pint. *Boric acid* in the same proportion he finds very satisfactory. When the pus does not diminish rapidly, *alum* (just sufficient to give its solution an astringent taste) should be employed, but more cautiously than the preceding. When there is a foul odour, bichloride of mercury (exceedingly dilute—beginning with a strength of 1 to 25,000) is found more satisfactory than carbolic acid. Of other drugs, such as *acetate of lead* and *nitrate of silver*, Dr. Tyson has had no experience. Of anodynes neither *opium* nor *cocain* affords relief when injected into the bladder; when required to relieve pain they should be administered by the rectum. In all cases attention should be paid to the thorough emptying of the bladder, and the patient should be taught to use the catheter himself. If these points be attended to, although a cure of chronic cystitis may never be obtained, yet a life of suffering may be converted into one of comparative comfort.

Cystitis, Salol in.

Dr. Mansel Simpson (*Practitioner*, June, 1892) advocates *salol* in cystitis the result of, or associated with, ammoniacal fermentation. *Salol* is quick in its action; within a day or two, in ordinary cases, the urine loses its foul smell and alkalinity, and becomes clear. It also seems that the bladder sooner regains its complete power of evacuation than with drugs. Taken by the mouth, *salol* passes practically unaltered through the stomach into the duodenum, where it is split up by the pancreatic juice. It does not disorder digestion, and therefore is advantageous in those cases of cystitis which are frequently attended with nausea and vomiting. By administering *salol* by the mouth the whole urinary tract, from the glomeruli to the orifice of the urethra, is washed out by antiseptic urine (containing carbolic acid and salicylic acids, the products of the decomposition of the *salol* by the pancreatic juice), which does not decompose, and which tends to destroy or remove any germs present. *Salol*, used as an injection for washing out the bladder, seems likely to be valuable in preventing the spread of infection upwards from the bladder along the ureters to the kidney, and thus diminishing the risk of pyo-nephrosis. A note of warning is given that care should be taken not to administer *salol* if it should be suspected that the kidneys are extensively diseased before the cystitis developed, since grave symptoms of collapse have undoubtedly occurred in such cases, due to carbolic acid poisoning, by the non-elimination of the drug by the kidneys. *Salol* is not soluble in water; but Dr.

in cases of gravel the patient's food should contain an adequate proportion of articles rich in saline materials, and as much ordinary salt as their palates will tolerate. (c) *Proportion of uric acid.* That gravel depends on excessive production of uric acid Sir William Roberts does not think follows *à priori*; for during the "alkaline tide" after meals, when the excretion of uric acid is normally at its highest, there is less risk of precipitation than at any other period. With regard to this point, the practical outcome was only this: that persons who are subject to uric acid gravel, and who are also troubled with a large appetite, should seek to allay their cravings and to lessen the intake of nitrogenous material by the free use of farinaceous articles of food, with salads, fruit, and garden vegetables, all of which are comparatively poor in albuminoid constituents. (d) *Excessive acidity of the urine* is, in Sir William Roberts's opinion, in the majority of cases the immediate determining cause of the precipitation of uric acid gravel, and the *paramount* indication for treatment is to diminish the acidity. Much may be done by watching the regular fluctuations in "acid" and "alkaline" tides, which have been so carefully studied by Dr. Bruce Jones and Sir William Roberts. From these observations we know the proportion of uric acid and that its percentage is highest during the time of sleep; but the hourly excretion was highest during the hours of sleep. Therefore the period when there is most risk of precipitation is during sleep, especially the two or three hours preceding breakfast. Sleep is a time of fasting, and therefore of hyperacidity of the urine; a time of recumbency and bodily immobility, and therefore a time when the renal stream approaches nearest to stagnation, and loiters longest in the renal tubes. A consideration of this fact assures us, if we can safeguard the night, the day will take care of itself. In the milder cases a single full dose of the alkalisng agent taken at bedtime suffices to prevent recurrence of colicky pains. For this purpose the citrate of potash, which on the whole is the best preparation, should be taken (40 to 60 grains in 4 ounces of water). In severer cases a second dose taken about the middle period of the hours of sleep is required to prevent deposition occurring during the early morning hours. This can usually be managed by bowing to the irritability of the bladder. In these cases the patient has to rise at least once during the night to relieve himself. Cases of uric acid gravel, however, are not always to be got rid of on these easy terms. Now and then instances are met with in which the perversion is so great that the urine is disposed to deposit almost the day through, and in which the normal alkaline tide after meals seems to be well-nigh abrogated. In

these circumstances additional doses of the antacid are required to afford the requisite protection ; and the right times for these doses are some two or three hours after breakfast, and some two or three hours before the last meal of the day. It is, indeed, a marked character of uric acid gravel that it oscillates in intensity—it comes and goes in paroxysms, reminding one of the waviness of gouty phenomena. For this reason it is desirable frequently to note the state of the urine, and to ascertain its greater or less proneness to deposit uric acid, so that the administration of the antacid may be adjusted to the actual needs of the patient. There need be no difficulty about this, for by placing freshly-voided urine in a test-tube, and keeping it in a warm place, the imminence of precipitation can be observed. Additional information, Sir W. Roberts thinks, is required with regard to the use of alkalies in gravel ; we want to know particularly the length of time over which a dose of alkali extends its influence over the urine, and the amount of dose required to reach an effective result, and the relative alkalising potency of the different preparations in use. (e) *The arrangement of the meal-times* is of great importance in the management of cases of gravel. Each meal acts on the urine as a dose of alkali, and also as a diluent, and in both these ways operates as a protection against uric acid precipitation. After the meal is absorbed and assimilated, the urine becomes again increasingly acid and concentrated, and, as a consequence, increasingly prone to precipitate uric acid ; subjects of gravel should therefore be warned not to allow too long an interval to elapse between their meals. This precaution is especially needed as regards the interval between breakfast and the midday meal. The first meal of the day is, with most persons, very quickly digested, and its effects on the urine are correspondingly transient. At no time during the waking hours does the acidity of the urine tend to rise so high, and its volume to fall so low, as in the later portion of the interval between the first and second meal of the day. This interval should therefore be abridged. Some people interpose an unconscionable interval, of twelve or fourteen hours, between their last meal at night and their breakfast. This is a very risky procedure for patients suffering from gravel.

The essential point in the prophylactic treatment of gravel is to guard the urine from precipitating in the *renal passages*. If therefore we can delay precipitation whilst actually passing from the tubules, any subsequent precipitation is practically harmless. An antacid effect therefore which is too feeble to render the urine actually alkaline may be quite sufficient to depress its

acidity to such a point as shall postpone the time of precipitation until the urine has passed the kidneys. (*f*) *Effect of water and mineral waters on the kidneys*; if it were possible to continue the inhibition of water at short intervals during the twenty-four hours, it would no doubt be an effective means of guarding against uric acid gravel, but it would be an onerous proceeding, and even impossible during the hours of sleep, the period when dilution is most required. The same may be said for mineral waters, except those which are largely impregnated with alkaline salts; they all owe their reputed efficacy to that which they all contain in common—their watery constituent. In conclusion, Sir William Roberts thinks that a preventive treatment of uric acid gravel, to be completely effective, should be available all the year round, and be capable of timely application whenever the emergency arises. An adequate choice of substances that alkalise the urine is always at our disposal; their power of preventing uric acid precipitation amounts to a chemical certainty; and in even moderately prudent hands no harm can follow from their use. There is no reason, provided vigilant watch be kept on the imminence of uric acid precipitation in the fasting urine, in the manner before described, why sufferers from this kind of gravel should not, by a prompt resort to antacid remedies, be able at all times to protect themselves effectually against fresh formation of uric acid concretions.

19. Piperazin. See “Gout and Rheumatism,” § 4, p. 164.

20. Renal calculi, use of turpentine.

Dr. Ralfe (*Lancet*, Dec. 5, 1891) observes that the physicians of the seventeenth century undoubtedly employed turpentine, and apparently often with good results. Dr. Ralfe therefore draws attention to this old remedy, with the view, in conjunction with the so-called solvent treatment, diuretics, etc., (1) to assist in the expulsion of concretions already formed, (2) to prevent the formation of others. After quoting a series of illustrative cases in which expulsion of a calculus followed the administration of turpentine, and of others in which the formation of “recurrent” calculi was checked, Dr. Ralfe proceeds to consider how turpentine acts in thus causing their expulsion and their prevention. First as regards expulsion. It has been stated that turpentine acts powerfully as a diuretic, and thus helps in washing down the stone. This may be so when turpentine is given in small doses for some time, and may thus help to wash down a small recently formed concretion; but when there is much colic, and there is a decided tendency for the stone to pass, he has noticed that, so far from

turpentine acting as a diuretic, it has an opposite tendency; indeed, on these occasions one has to be very guarded as to giving the drug, as strangury is then so easily induced. On the other hand, turpentine decidedly increases the colic, and it would appear as if it actively stimulated the muscular fibres of the pelvis of the kidneys and ureters, and also of the gall-bladder and bile-ducts. This, he thinks, was shown in a case he saw, in which, combined with frequent colic, there was considerable hæmaturia and pyelitis; after a time these symptoms yielded to treatment, but whenever the turpentine was resumed the colicky pain returned, though at other times the patient was free from pain. In long-standing cases turpentine aids the passage of a calculus by improving the condition of the mucous surface of the ureters and bile-ducts; for by diminishing the swelling caused by catarrh there is less resistance presented to the onward passage of the concretion, and especially allowing it to pass whilst still small. In those cases also in which there is a tendency towards the constant formation of calculus concretions, as shown by a more or less frequent recurrence, turpentine acts as a preventive by rendering the secretion less tenacious and viscid—that colloid medium which all writers who have described the formation and growth of calculus concretions insist on as essential for their development. Finally, with respect to some forms of gall-stone, not only does turpentine aid in preventing their formation by its action on the mucous surface of the gall-bladder rendering the contents less viscid, but also probably exercises an antiseptic action on the bile secreted, and thus prevents the precipitation of cholesterin, which, we know, becomes less soluble as bile loses its natural alkaline reaction, which it does if any fermentative change takes place in it.

21. Diuretin.

Dr. S. Pfeffer (*Centralblatt f. d. Gesamnte Therapie*, No. 8, 1891) records his experience of the use of this drug in about forty-three cases of cardiac dropsy, acute and chronic nephritis, pleurisy, cirrhosis of the liver, and tuberculosis of serous membrane. The doses used averaged 75 grains daily, rising in some cases to 150 grains. In cardiac dropsy it acted as an excellent diuretic; and the diuretic action sometimes lasted two or three days after the remedy had been discontinued. In acute nephritis no effect was obtained, but in contracted kidney favourable and even surprising results were observed. The same was noted in cirrhosis of the liver, but in pleurisy there was no effect. Dr. Kress (*Münchener Med. Wochenschr.*, No. 38, 1891) observed the action of diuretin in twenty patients suffering from nephritis,

heart-disease, pleurisy, and cirrhosis of the liver. Its effect is due to a direct non-irritant action on the parenchyma of the kidney. It exhibits its best effects in acute and chronic disease of the heart and kidneys, but especially in acute nephritis and pure heart-lesions. Chronic nephritis and weakness of the heart muscle were both favourably influenced, but no good result followed its use in serous effusions. Dr. Schmieden (*Centralb. f. Klin. Med.*, No. 30, 1891) has treated with diuretin thirty-one patients suffering from dropsy from different causes. He found it useless in serous effusion from cirrhosis and in tubercular peritonitis. In chronic nephritis its action was uncertain; in one half the cases it failed entirely, and in the other half a moderate increase occurred; there was a moderate increase of excreted urine from a third to one-half. Owing to the fewness of cases, no conclusion could be drawn from its action in acute nephritis. In the majority of heart diseases, both valvular and vascular, diuretin acted as an excellent diuretic, but the pure heart-lesions afford the best field for its action. In these cases a large and persistent flow of urine was excited. Persistent diuresis, Dr. Schmieden observes, after the remedy has been discontinued, is not more likely to occur after the use of diuretin than after calomel.

[As far as regards the action of diuretin on renal dropsy the experience of these observers is rather at variance. Dr. Pfeffer speaks of its extraordinary and surprising effect in cases of contracted kidney, and its failure in acute nephritis; whilst Dr. Kress says that its action is best noted in the latter, though good effects were also noted in the chronic form. Dr. Pfeffer also reports good results from the treatment of ascites due to cirrhosis, whilst both Dr. Schmieden and Dr. Kress state that it was entirely without effect. Another difference of opinion may be noted: whereas Dr. Pfeffer states the diuretic action of the drug is continued after its administration has been stopped, Dr. Schmieden has observed the opposite. All, however, speak well of it in cardiac dropsy, especially when due to valvular disease. As far as my experience goes, I have been disappointed in its action as far as acute and subacute attacks of nephritis are concerned. In some cases of contracted kidney with dilated heart it exercised a slight influence in increasing diuresis, but not sufficient to encourage its use. In a case of ascites with cirrhosis it had absolutely no effect. On the dropsy of heart-disease it had decided influence. One advantage diuretin has as a diuretic is, that as well as increasing the water it increases the elimination of urea and salts. It has the drawback, however, when pushed, of causing headache, nausea, and diarrhoea.]

22. Miscellaneous abstracts.

Short references to contributions not treating directly on therapeutics, but having a collateral bearing on renal and urinary pathology.

(1) *Albuminuria in pneumonia.*

Dr. Lee Dickinson and Mr. H. K. Fyffe (*Brit. Med. Journal*, vol. ii., p. 1206, 1891), in a paper read before the Clinical Society, gave an account of albuminuria occurring in pneumonia and allied conditions. The urine was first freed from the albumen coagulable by heat, and then treated with nitric acid and the biuret test. With the latter a pink zone developed when the urine was floated on the alkaline copper solution. The origin of the albumose was pus—or inflammatory exudations—probably due to pyogenic micro-organisms. Albuminuria is also met with during the absorption of the inflammatory products of acute rheumatism.

(2) *Dysuria senilis, Pathology of.*

Prof. Casper (*Therap. Monatsh.*, No. 2, 1892) states that the chief cause of dysuria in elderly male patients is to be referred to enlargement of the prostate. Prof. Casper has examined twenty-eight cases, and in twenty-four found with enlarged prostate sclerosis of the aorta. Hypertrophy of the prostate and renal arterio-sclerosis occur not infrequently together, but are independent of each other, since the vascular disease was found only eight times in the kidneys, eight times in the neighbourhood of the opening into the bladder, nine times in the small vesical arteries, and four times in the prostatic and periprostatic vessels. Thus the arterio-sclerosis may have quite a local development.

(3) *New test for albumen.*

Dr. Ed. Spiegler (*Therap. Monatsh.*, No. 3, 1892) proposes a very delicate precipitate for albumen in urine, in a solution of corrosive sublimate 8 parts, tartaric acid 4, white sugar 20, and distilled water 200. The urine is gently floated on this solution, which is strongly acidulated with acetic acid, so that the two fluids come into contact without mixing.

If albumen is present, a sharp white ring becomes visible if the tube is placed in front of a dark background. Propeptone gives the reaction; but peptone, which gives the biuret reaction, does not. The solution detects albumen when present in 1 in 150,000 parts, directly; and in 1 in 225,000, after one minute. The sugar is added to increase the density of the solution to specific gravity 1.060, so that dense urines may be floated on it. The acetic acid prevents the precipitation of phosphates and of carbonate of mercury.

(4) *Uræmic eruptions.*

Dr. Le Cronier Lancaster (*Lancet*, vol. ii., p. 1169, 1891), at a meeting of the Clinical Society, Nov. 13th, drew attention to certain peculiar states of the skin associated with a uræmic condition of the blood, principally in connection with chronic interstitial nephritis. First appearing as maculæ and papulæ of bright red colour upon the exterior surfaces of the hands, forearms, and legs, and then spreading over the whole body, after a few days these either subside with free desquamation, leaving the skin beneath brawny and thickened, or the eruption becomes eczematous with free exudation, which, drying, forms scabs and crusts; or in severe cases pustulation, even to the formation of small abscesses, follows. Severe itching usually attends all stages. The prognosis is usually grave, as in seven cases out of eight death occurred within five weeks of the outbreak. Dr. Lancaster made the suggestion that this uræmic eruption was a trophoneurosis, due to the presence of one or more toxic principles circulating in the blood, which the diseased kidneys failed to eliminate.

(5) *Zona in diabetes.*

Prof. Vergely (*Le Progrès Méd.*, Sept. 26, p. 217, 1891) mentions two cases of diabetes in which zona had been long observed as a marked complication. In the first case, a man of middle age, of powerful build, good history and habits, the eruption commenced with sharp neuralgia of the right frontal region, followed by the eruption of herpes, which for ten days gave rise to exquisite burning, and left deep scars. The amount of glycosuria did not greatly increase, but was complicated with albuminuria, and the patient died in a uræmic condition. In the second case, that of a woman aged forty-three, the herpetic trouble showed itself when the glycosuric trouble exhibited considerable increase.

[The connection between zona and diabetes has hitherto been rarely referred to, nor do we know what relation the eruption has on excretion of sugar. It may also be only confined to some special form of glycosuria. A patient who has been some years under observation with a distinctly gouty diathesis, suffered much from twenty-five till forty years of age from herpetic eruptions, preputial, labial, and general. Since he has become diabetic he has become less troubled, though he has slight manifestations. It must be mentioned, however, that he takes opium for the control of the glycosuria, which, perhaps, also controls the cutaneous neurosis.]

(6) *Glycosuria and diabetes.*

Dr. F. H. Collins (*Medical Chronicle*, vol. xiv., p. 329) quotes

certain interesting cases that show the advisability of repeated testings of the urine when there is an apparent abnormality, previous to rejecting a case finally for life assurance. In one case an attack of glycosuria came on after indulgence in ginger beer containing much unfermented sugar. With abstinence from sweet drinks and fluids, but continuance of ordinary diet, the sugar entirely disappeared. In another case the sugar after a continuance of restricted diet also disappeared, and after two months' freedom from glycosuria he was allowed half a pound of wheaten bread daily. The effect was most startling; he seemed to melt away, all the old symptoms returned, and he lost in one week what he had gained in six months. He was again placed on restricted diet, but he was found less amenable to its influence, and regained his strength less rapidly than at first.

[This last case confirms the statement made in § 7, to the effect that the resumption of a carbohydrate diet often provokes symptoms more severe than before it was curtailed, and the relapse is less amenable to treatment.]

(7) *Urinary constituents in gastric cancer.*

M. Bouveret (*Rev. de Méd.*, pp. 545, 575, July, 1891), from a careful examination of the urine passed by patients in whom the diagnosis of gastric cancer was obscure, has come to the conclusion that in gastric catarrh the ratio of urea to chlorides is increased, whilst it is lessened in cancer. Diet, however, and even vomiting when the pylorus is affected, may influence this ratio, so that in these circumstances the urea may be raised above the chlorides. In two typical cases, in which the diagnosis of cancer could not be considered doubtful, he noted slight, if any, diminution of the chlorides; so that the ratio of urea to chlorides sank from the normal 2-3 to 1-2, and sometimes as low as 0·7.

(8) *Uric acid as a cause of high arterial tension.*

Dr. Haig (*Lancet*, Oct. 31, 1891), in a paper read before the Royal Medical and Chirurgical Society, stated that, all other things being equal, arterial tension varied directly with the amount of uric acid in the blood, and that opium, mercury, and other drugs probably affected arterial tension by their action on uric acid. Opium, for instance, cleared the blood of uric acid by storing it in the tissues, not by elimination. When the stored uric acid was again in solution in the blood came the "opium rebound," with all the signs of excess of uric acid in the circulation. The effects of the drug on the brain and skin were due to its influence on uric acid. Uric acid, by contracting the arterioles and capillaries, raised the tension and pulse rate, and slowed the heart. If uric acid contracted the arterioles of the kidney and

held back water in the body, drugs that contracted the arterioles ought to have the same effect.

[Dr. Haig's communications always afford material for reflection, and bring into prominence clinical facts which attend on disorders associated with vaso-motor disturbances. But the evidence that these disturbances are in all the instances adduced due to uric acid is very far from being proven, so that many of the conclusions are still hypothetical. As yet there is nothing to show that the "storage" of uric acid in any given organ or tissue is any other than a mechanical condition due to the insolubility of its salts, caused partly by stasis and partly by diminished alkalinity of the blood. Nor has it yet been clearly demonstrated that the functional disturbances so widely assigned to uric acid are due solely to it or to an "acid intoxication generally."]

(9) *Oxygen, the effect on the nitrogenous products of the urine.*

Dr. G. Krafft (*Revue Méd. de la Suisse*, ix. 5) finds that the effect of 35 litres of oxygen is to increase the total nitrogen, though the urea was not so increased. Before the experiment the proportion of urea to total nitrogen was 86-100; after it, 75-100.

(10) *Pneumaturia.*

Prof. Senator (*Internat. Beit. z. Wissench. Medicin. Festssch. z. Virch. Jub.*, iii., 1891). In the "Year-Book" for 1891, p. 137, an instance of this condition was recorded, from a note by Dr. Philpots to the *British Medical Journal*; to which I appended a few remarks concerning the occurrence of pneumaturia in a diabetic patient in the London Hospital. Senator now records a case of development of gas in the urinary bladder of a diabetic. The gas consisted chiefly of carbonic acid, hydrogen, and nitrogen, with traces of carburetted hydrogen and oxygen. Fermentation of the urine occurred without the addition of yeast, the gas formed being CO_2 , and the fluid containing alcohol.

GOUT AND RHEUMATISM.

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1. Gout.

The progress made during the past year in the study of rheumatism and gout has been chiefly in the domain of pathology rather than in that of therapeutics, but in the former disease especially any advance in our knowledge of the processes involved in the production of its various phenomena cannot fail to have important bearings upon the question of its treatment.

The chemistry of uric acid in its relation to gout and calculus formation formed the subject of the Croonian lectures delivered by Sir William Roberts. Dr. Emil Pfeiffer, of Wiesbaden, has contributed some interesting observations upon the relative amounts of uric acid excreted by healthy people and patients suffering from acute and chronic gout, which observations have been made by more accurate methods than those employed in his earlier investigations of this subject. Dr. Haig has embodied in book form the results obtained in his long investigation of the rôle of uric acid in the causation of disease, and to criticisms of his methods and some of his results put forward by Dr. Herringham and Mr. Groves in the *Journal of Physiology* (1891, p. 475, *et seq.*) he has replied in the same journal (1892, p. 320).

Sir William Roberts in his Croonian lectures discussed at considerable length the chemical problems involved in the pathology of gout and uric acid calculus. In opposition to the opinions of Ebstein and other observers, he continues to maintain the view that uric acid is not in itself a poisonous substance, and that when in solution it exerts no deleterious action upon the tissues. The deleterious effects which undoubtedly result from its presence in excess in the blood are, he maintains, of mechanical origin, and result from its deposition in the form of the insoluble biurate of sodium.

Sir W. Roberts has come to the conclusion, as the result of an extensive study of the solid urines of birds and serpents, that such excreta consist entirely of the quadrurates of ammonium, potassium, and sodium, and are therefore of similar nature with

the amorphous uratic deposits met with in human urines, and differ from such sediments in the absence of pigmentation only. The quadrurates are with difficulty obtained in a state of purity, being as a rule mixed with free uric acid, and the biurates. Such compounds are eminently suited for the conveyance of nitrogenous excreta in a solid urine, whereas the liquid character of mammalian urine requires that the bulk of the nitrogenous excretion should be in the form of the soluble urea, and the uric acid present in liquid urines may perhaps be of the nature of a vestigial residue persisting in spite of the evolution of the higher from the lower forms of animal life. As a rule the uric acid retains the form of quadrurates not only in the urinary passages, but even for a considerable time after the urine has been voided; but under certain conditions a premature decomposition of the quadrurates takes place, with the liberation of uric acid, which is deposited in a crystalline form. In some cases this change merely occurs unusually soon after the urine has been passed, but in the case of patients with a tendency to uric acid calculus the change is so premature that the free acid is deposited in the kidneys themselves. A molecule of a quadrurate may be regarded as consisting of a molecule of biurate united to a molecule of uric acid, and the splitting up of this complex molecule will always take place sooner or later, under the influence of the superphosphate present in the urine, the biurate so formed being reconverted into quadrurate; and this process of decomposition and recomposition is repeated over and over again until all the uric acid present has been set free.

Certain ingredients of the urine tend to inhibit this process, and since dialysis tends to remove this inhibitive power to a great extent, it must chiefly reside in the crystalloids. It was found experimentally that the chlorides and sulphates of the urine had a considerable inhibitive power upon the process, the potassium salts being more efficient in this respect than those of sodium or ammonium. Urines alkaline from fixed alkalies did not tend to decompose the amorphous urate deposits at all.

Urate deposits stained with pigment were much less readily decomposed than were artificial colourless deposits, and the excessive pigmentation of the deposits of febrile urines may probably account for the little tendency which such urines exhibit to deposit free uric acid.

It will be seen from the above that a diminution of the saline or pigmentary elements in the urine may play an important part as a determining factor in the production of gravel and calculi.

For example, a scantiness in the saline constituents may

perhaps be a factor in the liability to calculus exhibited by the children of the poor, and by the natives of India ; whereas the recognised immunity of sailors may be in part due to a salt diet. In chronic renal disease, again, in which pigments and salines are often deficient, uric acid deposits are not uncommon.

Gouty persons, on the other hand, usually pass urine rich in salts and pigment, and Sir William Roberts is inclined to attribute the tendency to the deposition of uric acid in such cases to other factors, such as the proportion of uric acid present in the urine, and the degree of acidity of the liquid. Although the proportion of uric acid in the urine bears no constant relation to the rate of its excretion by the kidneys, and although gravel is no indication of an excessive output, the presence of an excess certainly tends to hasten the deposition of the crystals, as also does a high degree of acidity.

Our treatment must be directed to the prevention of further deposition, and not to the removal of deposits already formed, which is beyond the power of drugs.

Sir William Roberts holds that, in spite of the so frequent clinical association of gravel and gout, the two conditions are in reality quite distinct, the constitutional error being essentially different in the two diseases. In the treatment of gravel common salt should be taken freely and articles of diet rich in saline constituents. An alkaline treatment should be initiated and persisted in, since uric acid cannot be deposited from an alkaline urine, and cannot be thrown down in the urinary passages as long as the excretion is neutral or only faintly acid. In any circumstances it is only during a limited portion of the twenty-four hours that the risk of such deposition is present, and as long as the period of the long night-fast is safeguarded all that is necessary will have been done. This may usually be effected by the administration of 40 to 60 grains of potassium citrate at bedtime, although in some instances a second dose during the night is necessary. [*See also* Article on "Diseases of Kidney," p. 148.]

Some experiments of **Dr. Luff** show that the effect of a 40-grain dose of the citrate taken at 11 p.m. lasts until 8 a.m. The bicarbonates act just like the citrates, whereas with the acetates, although the effect is more rapidly manifested, it is less lasting. Since every meal acts as a dose of alkali, unduly long intervals of fasting should be avoided by patients prone to form uric acid calculi. Mineral waters differ in their mode of action in these cases, for whereas alkaline waters are protective because they render the urine alkaline, others merely act by flushing, the water itself being their important constituent.

In gout the tophaceous deposits are the most characteristic feature, and their essential constituent is sodium biurate in crystalline form.

These tophaceous deposits have been submitted to analysis anew by Ebstein and Sprague, and we may here turn aside for a moment from Sir William Roberts's results to consider these analyses, which will be found in *Virchow's Archiv*, 1891, cxxv. p. 207. Ebstein was only able to find five previously recorded analyses of tophi, which analyses, although they agree in showing that salts of uric acid are the chief constituents, exhibit considerable minor differences.

In the first tophus examined, which was obtained from the periosteum of the heel of a gouty patient, Sprague detected traces of phosphoric acid, calcium, magnesium, sulphur, and iron. The mass consisted chiefly of uric acid combined with alkalies, the total amount of urates being 70 per cent. He ascribed the presence of a trace of iron to included blood. The second tophus, which was obtained from the great toe of another patient, contained a rather larger proportion of urates. In the first specimen the sodium biurate amounted to 75 per cent., potassium biurate to 12·93 per cent., whilst no less than 27·88 per cent. of the mass consisted of animal matters.

Sir William Roberts holds that if only we could keep the sodium biurate in solution in the animal fluids the clinical features of gout would be entirely transfigured. He has studied the solubility of sodium biurate in various media, with the result that whereas it was found to be fairly soluble in warm distilled water (1 in 1,000) it was very sparingly soluble in synovia or in blood serum (about 1 in 10,000). A solution of the saline ingredients of the serum in their proper proportions behaved like the serum itself. Comparison experiments showed that the influence of a salt upon the solubility of the biurate depends not upon its acid but upon its basic constituent, carbonates and phosphates behaving in this respect like chlorides and sulphates.

Salts of sodium distinctly hindered solution, those of lime, magnesium, and ammonium had a similar but less conspicuous effect, whereas salts of potassium exerted no such action. It was further found that the addition of sodium salts to serum or synovia hastened the precipitation of uric acid in the form of biurate, whilst the precipitation was sensibly retarded when potassium salts were added. The retarding action of calcium and magnesium salts was much less marked.

The tissues most liable to uratic deposits are richer in sodium salts than others not so liable. The distribution of the deposits

in cartilage suggests that the uric acid penetrates into this tissue from the synovia rather than from the blood, the precipitation being probably aided by the comparative stillness of the synovia.

Our treatment should be directed to the restriction of the uric acid formation, since the larger the amount present, the earlier and more copious is its precipitation. Proteid food tends to increase the amount of uric acid formed, and vegetable diet is preferable to animal because the amount of proteid contained in it is less. Meat, fowl, game, and cheese should be avoided, whilst bread, rice, vegetables, salads, and fruit may be taken freely. The effect of alcohol is apparently a complex one, since the addition of a little alcohol to experimental solutions does not hasten precipitation. Table salt, as a sodium compound, should be taken sparingly.

In administering drugs we must remember that whereas in cases of stone we have to influence the small bulk of the urine, in gout we are trying to affect the large bulk of the blood serum.

Alkalescence has no real influence upon the solubility of sodium biurate, and in gout there is no true acid dyscrasia. Any good effects of lithia or piperazin are not due to a solvent action upon the materials of gouty concretions, and these drugs do not retard the precipitation of sodium biurate *in situ*.

Many mineral springs frequented by gouty patients contain sodium salts in large quantities, and it is therefore not surprising that their first effect is often to precipitate an attack. Sir W. Roberts advises resort to indifferent springs, such as Buxton, Bath, Strathpeffer, Gastein, Wildbad, Pfeffers, Aix les Bains, etc. He attributes the good effects of such treatment chiefly to the free administration of water, aided by the regimen of the bath course.

Emil Pfeiffer (*Berliner Klin. Wochenschrift*, 1892, No. 16 and following numbers) has repeated his observations upon the uric acid excretion of gouty persons by means of Salkowski's method, selecting for the purpose of examination a series of patients in the intervals between acute attacks, a number of sufferers from chronic gout, and a series of healthy individuals. In order to obtain comparable results the amounts of uric acid and urea excreted per 100 kilogrammes of body weight were estimated, the age of the patients being the only factor not allowed for. He found that the excretion of both uric acid and urea diminished as age advanced, but that the relation between them remained almost constant.

Pfeiffer's results agreed with those arrived at by Garrod many years ago, as far as the patients liable to acute attacks were concerned, for he found that such patients passed a notably diminished

amount of uric acid, even during the intervals of perfect health ; but on the other hand in chronic cases, in which tophaceous deposits and stiffness of the joints were conspicuous phenomena, the excretion of uric acid was distinctly increased. He attributes the contrary results which he had previously obtained to the inadequacy of Heinz's method for such determinations.

He criticises the results of **Modhurst** (*see* "Year-Book," 1892, p. 184), who found that gouty patients always excrete more uric acid than rheumatic ones, objecting that he did not take the urine of healthy individuals as the standard of comparison, and that most of his so-called gouty patients were not gouty at all, the grounds upon which the diagnosis was based being usually utterly insufficient.

Pfeiffer considers that his results cannot be explained, as far as the acute cases are concerned, by an increased formation of uric acid, but he thinks that there must be an increased formation in the chronic cases, since no retention theory is here admissible, the actual excretion being above the normal. Moreover, whereas in the intervals between acute attacks the excretions of uric acid and urea are alike diminished, in the chronic cases the urea was not increased, and the relative amount of the two substances present did not conform to the ordinary rule.

Pfeiffer also replies to some criticisms of **Ebstein** upon his statement that the uric acid is far more readily removed from gouty than from healthy urine, by passing it through the uric acid filter (*see* "Year-Book" for 1891, p. 154). Ebstein had found that this is not nearly so constant a phenomenon as Pfeiffer maintains. To this it is replied that the conditions of Ebstein's experiments were varied, and that in no case was the proportion laid down by him of 5 grammes of uric acid upon the filter to 100 cc. of urine filtered employed. He further criticises Ebstein's selection of cases for examination. Holding that the prime factor in the successful treatment of the gouty state is the reduction of this tendency of uric acid to exist in the "loose" form, and to cause a more stable condition of the urates, he strongly recommends the use of alkaline waters by such patients, and especially of such as contain the bicarbonates of sodium and calcium, a recommendation which is strangely at variance with the advice of Sir William Roberts, quoted above. As long as this course is followed, Pfeiffer holds that the limitation of the nitrogenous diet is absolutely unnecessary. He holds, indeed, that such restriction may be absolutely detrimental to the patient.

2. Saturnine gout.

An interesting account of that variety of gout which occurs in

subjects of chronic lead poisoning is given by Lemoine and Joire (*Gaz. Méd. de Paris*, 1892, 8^e S. i., p. 1).

They call attention to certain differences which they have observed between saturnine and ordinary gout. Amongst these are a tendency to begin at an earlier period of life, an absence of premonitory symptoms, except those which are due to plumbism; a greater rapidity of progress of the disease, coupled with a tendency to attack a number of joints; a tendency to the early formation of tophaceous deposits, and to assume rapidly a chronic form. They regard the prognosis as more grave, especially as the kidneys are almost always diseased, and they have further noticed a greater tendency of cardiac implication.

3. Unusual manifestations of gout.

Several cases that are of interest as examples of gouty lesions of very unusual characters have been placed on record during the past year.

Sir Dyce Duckworth communicated to the Clinical Society (*Clin. Soc. Trans.*, xxv. p. 97) the case of a man aged 24, who had previously suffered from lead colic, and who was admitted to the hospital with an attack of acute articular gout which involved several joints. In the course of this attack priapism developed, and continued without intermission for no less a period than twenty-one days. It was found necessary to remove the pressure of the bedclothes by means of a cradle, and the water had to be drawn off by means of a soft catheter. Sir Dyce Duckworth considered that in this case there was probably thrombosis of veins in the corpora cavernosa, associated probably with some inflammatory condition of the trabeculæ.

Mr. F. H. Alderson (*Lancet*, 1891, ii. p. 1334) records a case in which acute periostitis of the tibia in a gouty subject appeared to take the place of an articular attack, and yielded very rapidly to treatment by colchicum.

4. Treatment of gout.

Drs. Biesenthal and A. Schmidt (*Berliner Klin. Wochenschr.*, 1891, pp. 1215 and 1231) have given the results of some fresh experiments and observations bearing upon the therapeutic value of piperazin in gout and calculus disease.

They confirm the statements of previous observers as to the great solvent power for uric acid possessed by piperazin, and found that it was a perfectly harmless drug in doses of 1 to 3 grammes in the twenty-four hours. The solvent action would, of course, be of no service if the drug were destroyed in the organism, but that it is not so destroyed is shown by the fact that it appears unchanged in the urine. A single dose of 5 grammes was found

to be for the most part excreted during the first day, but traces could still be detected after six days. In a further communication (*Berliner Klin. Wochenschrift*, 1892, p. 28) the same observers arrive at the further conclusion that piperazin is best given internally and in dilute solution, about 1 gramme being given during the day either in plain water or in soda-water. They do not advocate the administration of the drug in pills or powders. The taste of the drug is hardly noticeable in a solution of 1 part in 100. Since piperazin has no caustic effect upon mucous membranes it may be safely injected into the bladder. A solution of 1 part in 10 of water, or weaker, may be injected into gouty tophi; and lastly, it may be applied externally in the form of a lotion to gouty swellings.

They found that not only does piperazin dissolve uric acid readily, but that it also has a solvent action upon the albuminoid substance, which serves to cement the concretions together, and the removal of which must materially aid the solution of the deposits.

M. E. Ricklin (*Gaz. Méd. de Paris*, 8^e S. i. p. 27) also maintains that the experiments hitherto made with piperazin are decidedly encouraging, the costliness of the drug being the only obstacle to its wider employment. On the other hand, Van der Klip (*Nederland. Tijdschrift voor Geneeskunde*, 1892, i., No. 14) arrives at the conclusion that the solvent power of piperazin has been greatly exaggerated, and that it has not nearly so great an advantage over carbonate of lithium as has been represented. He found that the drug was harmless, injections of 1 gramme into rabbits causing no toxic symptoms. Van der Klip found that piperazin has a remarkable power of delaying the setting free of oxygen from hæmoglobin, the oxyhæmoglobin bands remaining visible much longer in diluted blood to which it had been added, than was the case when no such addition was made to the specimen. He found, moreover, that when a specimen of diluted blood was divided into two portions, and 5 per cent. of piperazin was added to one of them, the specimen so treated did not coagulate when heated to 100° C., whereas the other specimen coagulated at 74° C. Again, the digestion of albumen, *in situ*, was materially delayed, and almost prevented by the addition to the solution of 5 per cent. of piperazin.

Dr. Béranger-Féraud (*Bull. Gén. de Thérapeutique*, 1891, cxxi. p. 529) has made some trials of a plan of treatment brought to his notice by Dr. Foucaut, of Orleans, who had himself found it of great value in warding off attacks of gout. The treatment consists in the daily administration of 2 grammes of lactic acid during a long period, omitting one week in four.

Dr. Bérenger-Féraud found that in the cases which he observed the acute attacks were postponed, and if they occurred at all during the treatment, were of an unusually mild character. One patient, who found the ordinary dose insufficient to bring about this result, was completely relieved when he took 4 grammes daily.

The mode of administration of the drug is as follows :—The patient is provided with 40 grammes of lactic acid diluted with an equal quantity of water. A teaspoonful of this liquid represents 2 grammes of the acid. This quantity is added to two, three, or four glasses of sweetened water, according to taste, and the solution so prepared is drunk during the day. After three weeks the treatment should be suspended for ten days or so. No harmful effects upon the digestive functions or upon the nutrition of the patients were observed, even when the treatment was continued for a year or two. To any one reading Dr. Bérenger-Féraud's account the criticism will suggest itself that the large doses of water taken may themselves have had no small share in the causation of the favourable results which were obtained.

5. Rheumatism.

Recent years have witnessed a remarkable change in the prevalent views as to the nature of acute rheumatism, which is now regarded by almost all Continental writers upon the subject as a member of the infective group. In Great Britain, however, the older chemical theories are still widely held, although among ourselves many are becoming convinced by the powerful arguments which may be adduced in support of this theory.

The many analogies between rheumatism and pyæmia, and the nature of the local rheumatic lesions, which are almost without exception such as may also result from undoubtedly infective processes, would seem to indicate that this is the true pathology of the disease, and that such views will ultimately prevail. On the other hand, we have not as yet any conclusive bacteriological evidence in support of it ; and although in a number of cases organisms have been found in the blood or tissues of patients who have succumbed to acute attacks, these organisms have conformed to no uniform type, nor has the disease been reproduced by the inoculation of animals with their cultures. In support of this statement it is only necessary to refer to the observations of **Mantle, Klebs, Popoff, and Guttman**, the bacilli found by **Dr. Wilson**, of Edinburgh, in cases of rheumatic pericarditis, and the organisms similar to the monads of **Klebs** found in the articular fluid by **Petrone**.

During the past year two fresh observations have been published by **Achalme** and **Sahli** respectively.

Achalme (*C. R. de la Soc. de Biologie*, 1891, 9^e S. iii. p. 651) examined the tissues and fluids of a patient who died with cerebral symptoms during a second attack of rheumatic fever. Tubes were inoculated from the pericardium, the blood from the heart cavities, the intercranial fluid, the synovia and spleen pulp. All the agar tubes employed remained sterile, but bouillon inoculated from the pericardium and blood yielded pure cultures of *bacilli* of considerable size, with little mobility, of uniform length and diameter. These bacilli did not form chains, but remained isolated or joined by their ends into groups of two or three. They were rather smaller than the bacillus anthracis, and tapered towards the extremities. They took aniline stains readily. Their chief peculiarity was that they refused entirely to grow in contact with the air. When guinea-pigs or rabbits were inoculated from the cultures, they exhibited no symptoms beyond a passing indisposition. **Sahli's** patient (*Correspondenz Blatt für Schweizer Aerzte*, 1892, xxii. p. 22) was a girl, aged 16, who died during an equally undoubted attack of acute rheumatism, and in whose body no pus was anywhere found. From the joint structures, pericardium, endocardium, as well as from the blood and enlarged bronchial glands, cultures were obtained of a *micrococcus* resembling in all its characters *staphylococcus citreus*. From the synovial fluid no cultures could be obtained.

Sahli concludes that these organisms were probably the primary cause of the disease. They differed from ordinary cultures of this organism in that when injected into rabbits they gave rise to no obvious symptoms. Sahli is inclined to the opinion that the organism represented an attenuated form of the *staphylococcus citreus* which has lost its power of causing suppuration. In the discussion that followed the reading of the paper, Nencki, whilst admitting the possible correctness of Sahli's views, expressed a doubt whether the micrococcus was not really due to a secondary infection.

Here then, as previously, we have widely discrepant results in different cases, and the failure, as in former instances, to reproduce the disease in animals. It should be mentioned, however, that **Popoff** states that the organism discovered by him produced arteritis, pericarditis, and endocarditis in rabbits, and that similar micrococci were found in the tissues of the inoculated animals. (An abstract of his results will be found in the *Wiener Med. Presse* for 1888, p. 161.)

6. Changes in the blood in acute rheumatism.

Maragliano and Castellino (*Gazzetta degli Ospitali*, 1891, p. 196) have found profound changes in the blood in the course of acute

rheumatic attacks. Changes both chromatic and morphological were detected by them in the red corpuscles. There is marked oligocythæmia, but no real leucocytosis, the increase of white corpuscles being only apparent.

The present writer (*Medico-Chir. Trans.*, 1892, vol. lxxv.) has obtained results which differ in certain important respects from those above quoted and from the earlier results of Hayem.

He found, as the above-named observers have done, that there was always a marked decrease of red corpuscles during the attack, the diminution usually reaching about one million per cmm., but in prolonged attacks the loss was not progressive, a certain low level being reached and maintained. No connection between the loss of corpuscles and the temperature could be traced, the fall being excellently marked even in practically afebrile cases. The changes could not be referred to salicylic treatment. In some cases there was a great loss of hæmoglobin without a corresponding loss of corpuscles, especially during the period of recovery. In a few instances a converse variation was observed.

No relation could be traced between the blood changes and the appearance of hæmatoporphyrin in the urine, nor the variations in the amount of that pigment present.

Like Hayem he found an actual increase of white corpuscles during the acute stage, a true leucocytosis, as was shown by the number of leucocytes in the cubic millimètre, and quite independent of variations in the number of white corpuscles.

7. Multiple lipomata in a rheumatic subject.

Rendu (*Bull. et Mem. Soc. Méd. des Hôpitaux*, 1892, p. 199) relates the case of a man, aged 51, with mitral disease, who exhibited numerous fatty tumours upon the arms and legs. The interest of the case lies in the fact that Rendu considered that the association was not merely an accidental one, since the development of the tumours dated from one of a series of attacks of rheumatic fever from which the patient had suffered.

8. Erythema nodosum and articular rheumatism.

There can be no question that occasionally, though less commonly than the varieties of erythema multiforme, erythema nodosum is developed in association with acute articular rheumatism, and an interesting example of this association is recorded by Chaddock (*New York Med. Journal*, 1892, xv. p. 290). The patient was a youth of 18, who developed first an endocardial murmur, then a characteristic eruption of erythema nodosum, and still later an attack of articular rheumatism.

9. Treatment of rheumatism.

May and Voit (*Deutsches Archiv*, 1892, xlix. p. 56) describe

the results of an extensive trial of sodium dithio-salicylate, first advocated as an anti-rheumatic drug by **Lindenborn** in 1889. Of the two isomeric compounds to which this name is given, designated respectively as I. and II., **Lindenborn** employed only II., whereas the more recent observers chiefly made use of a pure preparation of sodium dithio-salicylate I., but were unable to detect any therapeutic differences between the two. They found that gramme doses administered to a dog soon caused hæmaturia.

The dose varied from 4 to 10 grammes in the twenty-four hours, the usual quantity given being from 6 to 8 grammes. A large initial dose was given (2 to 5 grammes), followed by gramme doses every two hours until the pain was relieved.

Relief from pain, and decrease of the joint swelling, were usually obtained in a few hours, but a single dose only cut short the attack in very slight and early cases. In severe cases the relief was no greater than is afforded by previously known anti-rheumatic drugs. However, even in somewhat tedious cases, there was never any chronic pain or stiffness left by the attack. Some hour or two after the administration of the drug, diarrhœa and sweating were produced, whilst the temperature fell. The diarrhœa, which was usually moderate and free from pain, was attributed to the breaking up of the compound in the stomach into salicylate and sulphur. No increase of sulphates was detected in the urine, but the salicylic reaction was obtained.

The drug in no instance caused nephritis, nor was there any noticeable increase of pre-existing albuminuria. No cerebral disturbance was observed, nor was the buzzing in the ears so marked as with sodium salicylate. Gastric pain and vomiting were sometimes caused, and in four cases a measliform rash was developed and lasted for a day or two.

These results will hardly encourage us to substitute the dithio-salicylate for more familiar salicylic compounds, since it does not appear that it possesses any conspicuous advantages which in any degree compensate for the unpleasant effects produced by its administration.

10. Phenocoll.

Herzog (*Deutsche Med. Wochenschrift*, 1891, p. 946) speaks favourably of the hydrochlorate of phenocoll as a rapidly acting antipyretic drug, but one which, although it may usually be given with safety, requires to be administered with caution in some cases. He does not include any cases of acute rheumatism amongst those treated, but in a chronic case the pains were relieved. In two cases of sciatica the drug acted particularly well.

Balzer (*Therapeutische Monatshefte*, 1892, p. 289) finds that phenocoll is a very valuable drug in acute rheumatism, and recommends its employment in all cases in which the salicylates are contra-indicated or fail. It is important that the doses given should not be too small, and Balzer only obtained satisfactory results with doses of 4 grammes in the 24 hours.

R. Bum (*Wiener Med. Presse*, 1892, Nos. 20-22), after an extensive trial of phenocoll in a variety of diseases, gives a much less favourable account. In two cases of acute rheumatism in which it was tried, phenocoll hydrochlorate proved quite ineffectual as an antipyretic and anodyne, whereas sodium salicylate soon relieved the patients. Bum hesitated to push the drug for fear of an effect upon the heart, and only gave from half a gramme to 2 grammes in the 24 hours, which may explain the unsatisfactory results, Bum's maximum dose being only half of Balzer's minimum effectual quantity.

11. *Ephedra vulgaris*.

In a paper which is abstracted in the *Bull. Gén. de Thérapeutique*, 1891, cxxi. p. 426 and elsewhere, **Betchine**, of St. Petersburg, advocates the employment of a decoction of the stems and roots of *Ephedra vulgaris* in the treatment of acute rheumatism. The plant is widely met with throughout Russia, and has long enjoyed a great reputation among the peasants. Betchine has found it very useful in acute articular and muscular rheumatism, the pain being relieved in 24 to 48 hours, and recovery being complete in 8 to 10 days. In chronic cases it proves less useful. The drug has laxative, diaphoretic, and diuretic properties.

INFECTIOUS FEVERS.

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1. The antipyretic treatment of fevers.

Dr. Graham (*Med. Chronicle*, April, 1892) sums up his conclusions on antipyretic treatment as follows:—(1) Attention must at all times be directed to the normal fever of the disease and to the accompanying pulse-rate. Only when the fever and pulse-rate assume abnormal severity is there place for consideration of antipyretic treatment. (2) Of antipyretic methods, bathing is the best. The patient should be first of all placed in tepid water, which is subsequently cooled; wet packing is less efficacious. Antipyretic drugs are often useful as adjuncts to the cold bath, or alone. In hyperpyrexia treatment by antipyretic drugs is useless, and cold bathing is the only trustworthy treatment.

With regard to over-frequency of pulse, he has a strong prejudice against digitalis in fever, and condemns aconite. "Alcohol is the grand remedy for the failing pulse of fever."

2. The effect of various treatments on the elimination of toxic products in typhoid fever.

Messrs. Roque and Weil (*Revue de Méd.*, Dec., 1891) find that in typhoid fever the excretion of toxic products of the bacilli in the urine is very incomplete during the disease itself, and is much increased during convalescence. Even, however, during the disease itself the toxic power of the urine is twice as great as the normal. After the use of cold baths in typhoid fever, the toxic power of the urine becomes five or six times as great as that of normal urine; and the cold bath is, therefore, an efficacious remedy in eliminating injurious products. Under treatment by antipyrin the excretion of toxic products is not more than the normal, and is even below it, and it is, therefore, of no beneficial effect in typhoid fever, so far as regards elimination of toxic matters.

3. Treatment of enteric fever.

Dr. Wallace Beatty (*Dublin Journ. of Med. Science*, No. ccxlv., 1892, p. 237) agrees that milk diluted with soda or lime-water, or

boiled, if there is diarrhœa, is the best diet for typhoid patients, and that a little beef-tea is a useful addition to the milk diet when the patient cannot take sufficient of the latter. Farinaceous foods should be avoided; eggs are better avoided, unless the patient is unable to take milk. The quantity of liquid food should not exceed two or three pints in twenty-four hours; diarrhœa and hæmorrhage and tympanites are best prevented by limiting the quantity of liquid taken. He disagrees with Sir W. Jenner's dictum that patients suffering from typhoid fever should be allowed an unlimited supply of cold water. Before commencing solid food, he advises that the quantity of liquid food should be increased.

4. The treatment of typhoid fever.

Dr. James Barr, in a work under the above title, advocates keeping the patients whose temperatures do not keep within satisfactory limits (and especially where there is not a marked daily remission in the pyrexia) in a water tank, which he has had made for the purpose. It consists of a wooden box, 6 ft. long and 16 in. deep by 2 ft. 10 in. wide, lined with lead, which is painted white, and coated with shellac varnish. Each tank is provided with a discharge-pipe, which communicates with a soil-pipe leading to the sewer: the tank holds 70 gallons of water. The patient is wrapped up in a blanket, and completely immersed, except the head; and the tank is covered with a half lid, which prevents the weight of the bed-clothing from resting on the patient.

The patient is kept in the tank as long as is judged necessary; in one case, recorded by Dr. Barr, for as long as twenty days. A thermometer is kept constantly in the tank. As long as the patient's temperature in the mouth is over 100° F., the temperature of the water in the tank need not rise above 90° to 93°; but as the body temperature approaches the normal, so should the tank temperature. It was not found ever necessary to lower the temperature of the water below 90°, nor raise it above 98°. The removal of a bucketful of tank water, with the addition of the same quantity of hot water every two hours, is sufficient to maintain a fairly uniform temperature, and a variation of one or two degrees is a matter of no moment.

The urine and fæces are passed into the tank; the fæces are to a considerable extent retained in the blanket, and this is soaked for some days in a strong solution of perchloride of mercury and hydrochloric acid before being washed. A fresh blanket is used each day.

So far as the patient is concerned, plain water is all that is required, but for the sake of others it is as well to have it as antiseptic as possible, and various antiseptic substances have been

tried ; but latterly he has devised means by the use of a water-pillow in the bath, placed over a soil-pipe, whereby the excreta shall not mix with the body of water in the tank.

Dr. Barr is convinced that the bath supplies a means whereby we obtain a true antipyretic action, where the thermo-genesis is diminished, the thermo-lysis regulated, and the thermo-taxic mechanism improved.

The effect is seen in a diminution in the evening exacerbation of the fever, with a greater and longer remission.

As to other symptoms in typhoid fever, Dr. Barr orders an *emetic* in cases of vomiting in early stages of the fever, one or two tumblerfuls of hot water being as good as anything else. He always begins the case with a good *calomel purge*, about 2 grains ; throughout the illness, if there is constipation he generally repeats the remedy in half-grain doses, and he can see no objection to saline purgatives or castor oil, but prefers calomel.

Dr. Barr advocates the more or less routine administration of intestinal antiseptics, of which he prefers salol to naphthol, hydro-naphthol, or salicylic acid. To an adult 10 grains of salol may be given every four hours ; and if there be much diarrhoea, 10 grains of salicylate of bismuth may be added to each dose. When the bowels are confined, $\frac{1}{12}$ grain of calomel may be given with each dose of salol.

The best diet in typhoid Dr. Barr considers not yet determined. He orders carbohydrates very freely, and even butter, with decided advantage to the patients in lessening waste of tissue. He places no limit to the quantity of liquid nourishment, but for an adult finds " 4 pints of milk, 8 to 16 ounces of bread, and 2 ounces of butter are appropriated daily, and there is no use giving any diet which is not assimilated. The bread should be boiled with milk, or it may be peptonised, and the butter added. In the tank the appetite soon becomes good, and these quantities do not suffice." Arrowroot, sago, and infant foods may then be added.

5. Treatment of typhoid fever by chlorine.

Dr. M. A. Boyd (*Practitioner*, Feb., 1892, p. 81) writes : "Looking at the disease as primarily a catarrhal inflammation of the intestines, and secondarily as one of septic poisoning, the treatment resolves itself into suitable diet and antiseptics." He does not believe that antiseptics will abort a case of typhoid, but asserts that in the majority of cases they will prevent the septicæmic phenomena, for it is nothing but septicæmia that we have to deal with after the second week has passed ; the most suitable antiseptic is one which will act in the intestines, and not in the stomach, and must disinfect not alone the contents of

the bowel, but permeate the intestinal wall as well, where septic micrococci have already established themselves. The antiseptic, therefore, should be a gaseous one, and Dr. Boyd recommends chlorine in an alkaline solution; Murchison tried chlorine in an acid solution, but this is less effective. "That this method of treatment produces a fall in the temperature, and makes the type of the disease milder, there can be no doubt, and in over a fourth of the cases, when begun early it brings the febrile process to an end about the fourteenth or sixteenth day."

6. Chloroform in typhoid fever.

M. P. Wiener (*Bulletin de Thérap.*, Oct. 8, 1892) states he has treated with great success 130 cases of typhoid fever by a solution of chloroform (1 in 100). The destructive action of chloroform on the typhoid bacillus has been insisted upon by **Behring**, and **Hepp** of Nuremberg gave it in 1890 with success. The patients are given one or two dessertspoonfuls of the solution every hour, day and night, the dose being diminished as the symptoms lessen, but continued in small quantities even after the cessation of the fever. When the treatment can be commenced before the tenth day, the general symptoms are limited to loss of appetite, and fever, with weakness; the tongue does not get a black coating, and in a couple of days the thirst lessens as well as the tympanites and diarrhœa. But this result cannot be expected if the treatment is begun after the tenth day. The chloroform may produce jaundice.

7. Treatment of typhoid fever by calomel.

Dr. Simone (*Ref. Med.*, Dec., 1891) believes that during the first ten days of enteric fever the pyrexia is due to infection with the specific typhoid bacilli, but that after that time the fever is mainly due to secondary infection with other bacteria derived from the intestine, which find easy access to the tissues through Peyer's glands. He gives about $\frac{3}{4}$ grain calomel with about $\frac{1}{6}$ grain opium every two to four days. It has no influence on the fever of the first seven or ten days, but after this, in many instances, it completely cuts short the secondary oscillations of temperature, probably by a disinfecting action on the intestine.

8. Treatment of enteric fever by hydro-naphthol.

Mason (*Boston Med. and Surg. Journal*, Nos. 14 and 15, 1892) publishes a report on 676 consecutive cases treated in the Boston City hospital by hydro-naphthol. Of 103 cases, forty-five were so treated, and fifty-eight were treated without it. In twenty-seven of the forty-five diarrhœa lessened or ceased, but in some cases this effect was not produced for two weeks; only two cases died, while of the fifty-eight cases not taking naphthol seven

died. In none of the cases taking hydro-naphthol did hæmorrhage occur. The hydro-naphthol did not prevent relapses.

9. Treatment of typhoid fever by salol.

Mr. Howard Fussel (*Bulletin de Thérap.*, July 8, 1892) writes that salol does not shorten the fever or diminish the pyrexia, but arrests the diarrhœa, modifies the character of the stools, which become less fetid, and lessens the dryness of tongue and mouth. Intestinal hæmorrhage did not occur in his cases. The urine was coloured green, the ordinary effect of salol, but nephritis he never observed, nor is albuminuria a reason for discontinuing the salol treatment.

10. Prevention of complications and sequelæ of scarlet fever.

Dr. Lewis Smith (*Archives of Pediatrics*, Dec., 1891) writes that the theory that pathogenic organisms occur abundantly upon the inflamed faucial and nasal surfaces in scarlet fever, and that more or fewer of them enter the system through the capillaries or lymph channels and cause the internal inflammations that complicate this disease, receives support from recent investigations. Early and frequent disinfection of the fauces and nares in scarlet fever, whether mild or severe, should be insisted on, not only for the purpose of diminishing the inflammation of these parts, but of preventing as far as possible the more serious internal complications; the best mode of applying this treatment appears to be spraying or irrigation, with an antiseptic such as the peroxide of hydrogen, one part to four of water for the fauces, one part to eight of water for the nares used hourly, or every half-hour, or with corrosive sublimate, 2 grains to the pint of water employed every two hours within non-poisonous limits, or with some other non-irritating but efficient disinfectant. A nasal injection should always be warm. The following is a useful formula:—

Rx	Acid boric	...	...	...	...	...	} āā 3ii.
	Sodii boratis	...	...	...	...	...
	Sodii chlorid.	...	...	...	...	...
	Aquæ pur.	...	...	...	...	...	3j.
	One teaspoonful to be injected into each nostril hourly.						Oi. Misce.

Cold applications round the neck, as of muslin frequently wrung out of alcohol and ice water, in cases attended by a high temperature, aid in reducing the pharyngitis and preventing cellulitis and adenitis, but are less efficient than antiseptic sprays.

Early eclampsia, Dr. Smith points out, is usually associated with a high temperature, and he writes, "In all hyperpyretic

cases of scarlatina, whether its form be sthenic or asthenic, accompanied by pronounced nervous symptoms, an ice-bag—or its equivalent, a linen or silk handkerchief wrung out of ice-water every ten minutes—should be constantly applied over the head so long as the temperature remains at or above 103°." Cold applications over the great vessels of the neck, the jugulars and carotids, promptly abstract heat from the blood, while they diminish the pharyngitis, adenitis, and cellulitis. In sthenic cases the limbs may be frequently sponged with cold water containing alcohol or vinegar, but in asthenic cases cool applications to the extremities are liable to be injurious. In such cases the frequent application to the extremities of tepid or hot water, with brisk friction, accelerates the blood-flow and is evidently useful. Dr. Smith advocates, as an additional mode of reducing the temperature, a clyster every third hour of ice-cold peptonised milk.

Aconite and phenacetin, of the antipyretic drugs, are recommended, though "neither should be given in cases of extreme malignancy characterised by feeble pulse, dusky skin, and sluggish capillary circulation." Of tincture of aconite 3-minim doses may be given every three hours. Bromide of potassium or sodium will, according to Dr. Smith's observations, exert a wonderfully sedative effect on the nervous system and control threatening nervous symptoms. Carbonate of ammonia is recommended to counteract the tendency to the formation of cardiac thrombi: 3 grains should be given in half a wineglassful of milk every hour or half-hour to a child of five years suffering from heart failure.

11. Treatment of scarlatinal nephritis.

Ziegler (*Berlin Klin. Woch.*, Jan. 11, 1892) writes that for six years past he has been in the habit of keeping scarlet fever cases strictly on milk diet for three weeks, and of 100 cases so treated not one had albuminuria.

12. Treatment of variola pustules by boracic fomentations.

M. Coste (*Bulletin de Thérap.* Aug. 8, 1892).—Small-pox pustules inside the mouth usually heal without any scarring; and Dr. Coste, reasoning that possibly pustules occurring elsewhere, if also kept continually moistened, might heal equally well, recommends that from the very beginning of the eruption the face shall be covered by a mask of boracic lint, put on dry and moistened with boracic lotion after being applied. The hollows of the face are then filled up with wadding saturated in boracic solution, and the whole is covered by a piece of diachylon in the form of a mask, and outside this by a light bandage. Every four hours the plaster is removed and the wadding is moistened afresh with boracic

solution. In this way the fomentation is always moist, and is kept so till the crusts fall off, which is hastened by the dressing. Under such treatment excellent results are obtained.

13. Treatment of diphtheria.

Baginsky (*Arch. für Kinderheilkunde*, Bd. xiv., 1891) says what is required is a remedy capable (1) of destroying the bacillus where it first lodges, without injuring the patient, and (2) of hindering the spread of the deposit. It must also be able to render innocuous the poison of the diphtheria bacillus. Of the remedies tried, Baginsky finds corrosive sublimate the best; next, a 3 per cent. alcoholic solution of carbolic acid—which, however, has a nauseous taste. Oil of turpentine, permanganate of potash, boric, and salicylic acids were of much less use. Papazotin often was useful. In two cases a 3 per cent. solution of carbolic acid was injected close to the tonsils, but with little result.

14. Treatment of diphtheria by chloride of zinc.

Wilhelmy (*Deutsch. Med. Woch.*, Feb. 4, 1892) writes that the object of treatment should be to destroy the local focus of the disease, and with this view applies by curved forceps and cotton-wool a 20 per cent. solution of chloride of zinc as early and efficiently as possible. He says this caustic penetrates the tissues that are diseased, but does not affect surrounding healthy parts; and if the application gives pain, this can be relieved by sucking ice. The application is only required once, and a gargle is afterwards used, usually of lime-water. The slough usually is detached in about five days. In 100 cases treated in this way the best results were obtained, and no extension of membrane to the nose or larynx occurred.

Dr. Florian (*Bulletin de Thérap.*, April 15, 1892) confirms the advice of Dr. Wilhelmy, of Berlin, to employ chloride of zinc cauterisations in diphtheria. He recommends a saturated solution of equal parts of chloride of zinc and yellow quinine powder, with honey sufficient to form a paste, applied on charpie to the back of the throat. The pain is not excessive. The chloride of zinc destroys the false membrane, and afterwards the surface becomes covered by a sort of coagulum, which opposes itself to the development of new deposits.

15. Burnt petroleum in diphtheria.

Larcher (*Bulletin de Thérap.*, May 8, 1892) has for six years treated diphtheria by this means, and of forty-two patients only two died. The treatment consists in gargles and fomentations every two hours with the burnt petroleum, and sometimes to these are added sprayings with carbolic lotion. Under the influence of this medication, the false membranes soften and fall off. When

they are reproduced they are less thick, less extensive, and between them are islets of healthy surface, which soon increase, and the false membrane is not reproduced. The burnt petroleum has not a disagreeable odour; it has a curative influence on diphtheria, and can be employed jointly with other remedies.

16. Treatment of diphtheria by the galvano-cautery.

Dr. Bloebaum (*Deutsch. Med. Zeitung*, 1892, No. 1) claims that the applications of the galvano-cautery constitute a medication which is antiseptic, certain in action, and destructive of all germs. It should be employed early on the onset of the malady, when the system is not already impregnated with a too great quantity of toxic substances. Thirty-nine of forty cases so treated recovered; the only fatal case being one treated on the twelfth day of the malady, at the urgent request of the child's parents.

17. Treatment of diphtheria with ice.

This treatment, recommended by Jacobi, has been tried on over 100 cases by Mayer (*Rev. Mens. des Mal. de l'Enf.*, Sept., 1891), together with the internal administration of chlorate of potash. During the disease an icebag should be applied to the neck, and the child should suck ice at frequent intervals. During the night the ice should be given every ten or fifteen minutes. From 30 to 60 grains of chlorate of potash should be given daily, divided into twelve doses in the twenty-four hours. The treatment is warmly advocated by Erckelens, Thomas, and Johnson, the last-named asserting that under the treatment he had lost only 7 out of 177 cases.

18. Treatment of diphtheria by chromic acid.

Lesclure (*Bulletin Gén. de Thérap.*, Sept. 15, 1892) writes that the treatment of diphtheria should be based on two principles: (1) to destroy the false membrane which is the birthplace of the toxic products that give diphtheria its dangers; (2) to neutralise the ill effects of the toxic products that have already gained entry into the blood.

In order to carry out these two objects, we must endeavour to secure (1) the death of the false membrane; (2) sterilisation of the surrounding tissues; (3) stimulation of the system generally.

For ensuring the destruction of the false membrane, Lesclure finds the best agent is a 40 per cent. aqueous solution of chromic acid. This is a caustic application, but weaker solutions are of no use. Two or three drops should be applied with wadding on forceps, just touching lightly the false membrane and avoiding the surrounding healthy surfaces. This application is to be followed at once by a free mopping of the whole of the back of the throat

with a solution of coal tar (1 in 20). One effect of this is to neutralise the acidity of the chromic acid application, and a more important effect is that on meeting with the excess of acid, it precipitates albumen in the vicinity of the false membrane, forming a coagulum, which entangles the toxic products produced by the bacilli. In slight cases, one or two applications often are enough to ensure destruction of the membrane, but in severer cases more frequent applications are required, though rarely more than three in twenty-four hours. Under this treatment the false membrane does not at once detach itself, but it shrinks up and ends by falling off *en masse*.

The chromic acid application, though it appears to be a severe treatment, is exempt from all danger if only used in the small quantities recommended.

For sterilising the neighbouring tissues, three or four swabbings in each twenty-four hours with a solution of tannin in glycerine (1 in 6) are used. Experience shows this to be the best agent to use, for though it would be useless alone, after destruction of the false membrane by the chromic acid, the tannin has many advantages, giving no pain, not being in any way poisonous like corrosive sublimate solution, and being antiseptic and astringent.

An accessory means of sterilising the tissues around the deposit is "alcohol of eucalyptus" given internally as a drink. The eucalyptus is eliminated mainly by the respiratory mucous membrane, and has a beneficial effect. Antagonising the bacillary products, it is also a powerful nervine stimulant. As to general treatment, alcohol and nutritious food are advocated, and nuxvomica and quinine.

19. Treatment of diphtheria by nitrate of silver and bichloride of mercury.

Pilliere (*Sem. Méd.*, June, 1892) treats diphtheria by swabbing out the pharynx twice in each twenty-four hours with cotton wool steeped in a 1 in 30 solution of silver nitrate, applying it with sufficient force to detach the false membranes. After each swabbing he applies a spray of sublimate solution (1 in 500 in children over two years old; 1 in 1,000 in younger persons). The spray should be used every two or three hours. In some cases moderate diarrhoea is set up, but this does not call for suspension of the treatment.

20. Tannin in diphtheria.

Gozard has for several years used this treatment with satisfactory results (*Traitement abortif du Croup et de la Diphthérie par le tanin*. G. Carre, Paris, 1891). A damp wad of sponge fixed to a piece of whalebone is thrust into tannin powder, and is then

freely applied to the naso-pharynx, care being taken to apply it well to the back of the pharynx. In slight cases one application is said to be sufficient, but in a more severe case the application is renewed every two hours.

21. Treatment of diphtheria.

Masing (*St. Petersburg Med. Woch.*, No. 8, 1892) advocates strongly the application of a 2 per cent. solution of carbolic acid in spirit every two or three hours throughout the day and night; but, as **Mossin** remarks, the carbolic acid treatment recommended by Masing is very difficult to keep up and trying to the patient. **Szontagh** (*All. Wien. Med. Zeit.*, March 15, 1892) recommends gargling with alcohol, with or without 2 per cent. of carbolic acid, and he and **Flesch** recommend the internal administration of cyanide of mercury ($\frac{3}{4}$ of a 1 in 10,000 solution). **Jacques** recommends perchloride of iron as a spray (*Rev. des Mal. de l'Enfance*, March, 1892) and **Rayburn** (*Med. News*, March 5, 1892) recommends corrosive sublimate spray.

[The treatment above recommended by Masing must be very trying to the patient, and, as Mossen points out, from a study of the various methods of treatment during seven consecutive years at the Nicolai Children's Hospital, the variations in treatment have not been associated with any corresponding variations in the mortality.—S. P.]

22. Antipyrin in diphtheria.

Vianna (*Sem. Méd.*, March 30, 1892) finds antipyrin has a marked bactericidal action on the bacillus diphtheriæ, for the addition of a solution of antipyrin to cultures of it prevents the growth of the microbe, and causes the death of actively growing cultures in forty-eight hours, and the toxins resulting from the bacillar growth are destroyed. He therefore strongly recommends antipyrin for treating diphtheria.

[Our own experience is decidedly opposed to the use of antipyrin in diphtheria, on account of its depressing action on the circulation far outweighing any favourable results from its antagonistic action to bacillar growth. Indeed, it may be laid down as a general rule, where there is a tendency to non-aëration of blood and to failure of circulation, antipyrin should be abstained from.—S. P.]

23. Methyl violet in diphtheria.

M. Jaenicke (*Bulletin Gén. de Thérap.*, Oct. 23, 1892) publishes a series of observations on the use of methyl violet in diphtheria. He applies to the mucous surfaces, with a wad of wool attached to a probe, a saturated hot or cold solution; the applications are repeated for three to five hours, by which time the mucous surface

has become completely stained. Jaenicke advocates the use of the methyl violet as exerting a powerful destructive action on Loeffler's bacillus, and it acts on the mucous membrane both in destroying and in preventing the multiplication of the bacillus.

24. Creolin in diphtheria.

M. Siebelt (*Bulletin de Thérap.*, July 8, 1892) treated forty-six cases of diphtheria by sprays of a solution of creolin (4 per cent.). Ten of the patients succumbed, but among them were four in whom the prognosis was most unfavourable from the first, and in whom death occurred in twenty-four hours. As creolin is but slightly poisonous, the author thinks it preferable to carbolic acid or corrosive sublimate.

25. Strychnine subcutaneously in diphtheritic paralysis.

Dr. G. H. Cooke (*Brit. Med. Journal*, 1892, vi., p. 1303) points out the advantage of this method of treatment over the administration of strychnine by the mouth, the action when given hypodermically being quicker and more reliable. In one case cited by Dr. Cooke, a boy, aged 5, with diaphragmatic paralysis, accompanied by orthopnoea and irregularity of pulse, hypodermic injections of 1 minim of liquor strychniæ, four times daily, were administered, the paralysis of the diaphragm gradually passing off.

[From our own observation, we can testify to the benefits from the hypodermic administration of strychnia in cases of diphtheritic paralysis with a tendency to syncope.—S. P.]

26. Naphthalin in whooping-cough.

Ivanoff (*Vratch.*, 1891, No. 48, p. 1094) reports excellent results from naphthalin fumes inhaled continuously, day and night. A small linen bag containing the drug is suspended round the child's neck, or the substance is rubbed into the child's clothes. The powder should also be freely sprinkled over the floor of the sick-room. In severe cases, the author recommends that bromides shall be taken internally.

27. Cholera.

The outbreak of cholera in Europe during the year 1892, more especially at Hamburg, has been associated with a vast mass of literature on the pathology, the symptoms, the prevention, and treatment of the disease. In England, owing probably in great part to the active precautions taken by the Local Government Board, only a very trifling number of cases occurred—for the most part imported into the country from infected districts. But the histories of previous epidemics point to a not improbable revival of the disease during 1893, and to the necessity for a rigid carrying out of preventive measures to limit its spread and effects.

The preventive measures against cholera are treated in another section of this work (*see* article on "Public Health," p. 459), and attention will be directed here only to the symptomatology and treatment of the disease.

28. Cholera nostras.

Prof. Peter, of Paris (*International Med. Magazine*, 1892, p. 952), insists that cholera nostras, or cholerine, and Indian cholera are for all practical purposes one and the same malady. He believes that cholera nostras is contagious like cholera, and that under favourable conditions it may become epidemic. He gives notes of a rapidly fatal case occurring in France where no other cholera cases existed, in which the symptoms were the same as in Indian cholera, and in which the autopsy showed the same changes as are found after true cholera. Again, in a prison at Nanterre, cholera appeared in an epidemic form in April, 1892, among persons badly fed and drinking impure water, with a mortality of 98 per cent. Other examples are recorded by Prof. Peter showing how what at first seems simple cholerine may rapidly become an epidemic of true cholera; and it is therefore on every ground desirable that cholera nostras should be looked upon as true cholera, and the same precautions taken to prevent further cases as have been found effective in preventing the spread of the more severe disease.

29. The incubation period of cholera may be, according to **Pettenkofer**, as long as three weeks, but it may be much less; and as a rule symptoms come on in a few hours or days after exposure to the poison.

30. The symptoms of cholera, as described by **Dr. Sansom** (*Practitioner*, Oct. and Nov., 1892), are as follows:—The patient begins by feeling out of sorts, oppression is felt at the epigastrium, and sometimes griping in the abdomen. The bowels soon after these symptoms are copiously relieved, and the patient feels faint and vomits, and the cholera diarrhœa sets in, with watery diarrhœa containing white flakes. The stools contain no bile. The fluid drain continues long after the whole amount of liquid food has been purged away, and its source must, therefore, be the liquid part of the blood. The epithelium of the bowels gets detached in flakes, forming the flocculi of the stools. With the purging come on cramps in arms and calves, with the muscles drawn up in knots. In a few hours collapse succeeds, the skin is blue and cold, the features are pinched, the eyeballs set in dark hollows, and the lips shrunken, the voice is husky, and the breathing short and hurried. Cold sweats now occur, there is intense thirst, an arrest of urinary secretion, and the pulse at the wrist is almost imperceptible. If

these symptoms continue, death may occur, but at any time the diarrhœa may cease, the coldness lessen, and the strength return. In the collapse stage the first sign of restoration is the return of the pulse. In most cases the return to health is very rapid, but in other cases congestion of internal organs comes on with convalescence.

Miss A. and Miss H. Kenealey (who were engaged throughout the epidemic in Hamburg in nursing in the Eppendorfer Hospital, which was entirely given up to cholera patients) write in the *British Medical Journal* (Sept. 24 and Oct., 1892) that the apathy and lethargic drowsiness of the patients were remarkable features. Some patients, however, shriek wildly day and night. The disease apparently makes a special attack on the nervous system, and in two cases absolute dementia resulted; both cases ended fatally. Pneumonia was a frequent complication, increasing the resemblance to typhoid. A great number of patients suffered from a pustular eruption on the back, in its lower half, or reaching as high as the shoulders. Bed sores were frequent, appearing in a few days and spreading rapidly.

The lips become dry and cracked, the mouth inside sore and parched and often bleeding, the tongue coated, and the thirst intense, and this even without vomiting or diarrhœa. Vomiting was a more distressing symptom than diarrhœa, though terrible purging and cramps characterised a large number. Extreme cases are unmistakable, but ordinary ones resemble typhoid cases in the second or third week, reaching this condition in a day or two. Convalescent patients have a ravenous appetite. They rapidly pass from an almost moribund condition to comparative health, but remain anæmic and shattered for a long time. The cases ending fatally have a peculiar dusky look, less blue than heart cases, really blackish, especially about the hands and feet. The appearance of these latter resembles gangrene, but yet differs in that there is a shrunken look and no purpling, the flesh tints showing as if through coal-dust. The deaths are peaceful, lethargy passing into sleep, and sleep into coma. The terrible clearness of mind and recognition of the end which are said to be characteristic of cholera were not seen.

Cholera, as noted at Hamburg, appeared to deal badly with the old and very young. Middle-aged persons suffer severely, but a fair proportion recover. Healthy young adults suffer lightly, resembling an average typhoid case.

There was no evidence of cholera spreading in the hospital to persons not already suffering from it, though the wards were overcrowded from the great demands made upon the institution.

There is evidence that during convalescence the stools are infectious [a point of great importance.—S. P.].

31. Treatment of cholera.

Castor oil in early stage of cholera is advocated by **Dr. Sansom** from his experience in a former epidemic in England. He advises that during the early diarrhœa $\frac{3ii}{}$ of castor oil should be given, and believing that a septic cause is also in operation, prescribes also sulphite of sodium in doses of 15 to 20 grains for adults, and of 3 grains for children, administered in peppermint or cinnamon-water. This salt he considers preferable to the sulphocarbolate or the hyposulphite. Even when collapse begins the castor oil may be given. **Sir G. Johnson** also renews his former advocacy of castor oil in the early diarrhœa, and it is recommended in the instructions issued by the Royal College of Physicians, given below, that this course should be followed. On the other hand, many do not agree with this advice, and prefer to check the early diarrhœa by opiates, with or without bismuth.

Dr. Daremberg (*La Médecine Moderne*, Aug., 1892) recommends a powder of bismuth subnitrate, gr. xv.; benzo-naphthol, gr. xii., thrice daily.

Prof. Cantani (*Berliner Klinische Wochenschrift*, Sept. 17, 1892) points out that sometimes the fatal algidity and asphyxia are very rapidly produced without any great loss of water by purging or vomiting, and resulting blood inspissation, and attributes the former to the direct action of the poison generated in the intestine by the comma bacillus. The *indications of treatment* are, he says, four in number, viz., to check the multiplication of bacilli in the bowels; to neutralise the chemical poison formed in the bowel; to cause the speedy elimination of the poison from the blood; and to diminish the more or less marked degree of blood inspissation that ensues on the loss of water. The first two of these apply only to the earlier stages of the attack, the others to the treatment of declared and severe attacks. **Prof. Cantani** has long advocated the use of *hot rectal injections of tannin* as of the greatest efficacy in early treatment, and says that their employment is justified by what has since become known of the nature of cholera. The use of tannin is quite harmless, whereas injections of carbolic or boracic acid only irritate the bowel, while sublimate by coagulating albumen forms a coating under which the bacilli still flourish. **Cantani** has proved that the rectal injections pass beyond the ileo-cæcal valve, and he maintains that no remedy given by the mouth can exert such a marked local effect as the injections.

From 65 to 100 grains of tannin are suspended in from $1\frac{1}{2}$ to 2 pints of water or camomile infusion, with 20 to 30 drops

of laudanum, 6 to 10 drachms of gum arabic, the temperature of the fluid being about 140° F. This degree of warmth is an essential part of the plan, combating the tendency to algidity in as satisfactory a way as the hot bath (which is often contra-indicated by cardiac weakness), and stimulating the abdominal nerves. Cantani gives statistics to show that when patients are thus treated *from the earliest stages* they all recover, and that even in the later stages the mortality is reduced below the average. The action of the injections is better the longer they are retained, and whereas in mild cases only three or four injections on a single day may be needed, in others the treatment requires to be carried on for several days. This "entero-clytic" treatment, as he terms it, besides astringing the bowels and acidifying the intestinal contents, aids in the removal of the latter, together with their toxic elements, and although it is possible that its early employment may lead to non-choleraic cases being treated, there is no harm in this.

Dr. Sansom (*loc. cit.*), though not advocating the use of hot enemata in the early stages, writes: "If collapse continue, hot enemata should be given, the patient being in the lithotomy position—probably hot water is as good as anything; and they probably assist in relaxing the arterial spasm and in clearing away irritant matters."

The London College of Physicians recommend in their letter of instruction the use of benzoate of soda or of tannin for the enemas.

Dr. Rieder, at a meeting of the Hamburg Medical Society, gave an account of the different therapeutic methods employed in the Hamburg epidemic, and said that the tannin enemata recommended by Cantani proved totally ineffective.

32. Sub-cutaneous saline injections.

In the algide stage the dangers, Prof. Cantani considers, depend on the poison in the blood paralysing the nerve centres and heart muscle, and also on the inspissation of the blood impeding the action of the heart and tending to accumulation in the small vessels, and can only be met by bringing into the tissues and blood as much water as possible.

This has long been recognised, and is the reason for treatment by intra-venous saline infusion. Cantani has used the sub-cutaneous injection of hot saline solutions, two amounts of about a pint each being injected at the same time. He says the fluid is rapidly absorbed and gives a mortality of only 39 per cent. among severe cases. Cantani prefers this to intra-venous injections, and of injections into the pleural and peritoneal sacs we have little experience.

Dr. Sansom agrees that if the collapse be not lessened, hot saline fluids should be injected into the tissues (about $\frac{3}{4}$ of common salt and half a drachm of sodic bicarbonate should be dissolved in a quart of water at 100° to 105° F.). The injection should be made with a hypodermic needle, of fairly large calibre, attached to a reservoir of the saline fluid by an indiarubber tube. The puncture is made into ileo-costal, lumbar, inter-scapular, or gluteal regions, the tube being pushed far enough under the skin to move freely in the sub-cutaneous tissues. After about a pint of fluid has been injected, the needle should be withdrawn and the other pint injected into another spot. This method possibly prevents the emptying of the blood vessels, and supplies warmth, and is much easier than the intra-venous injections practised formerly.

Dr. Rieder agrees that sub-cutaneous injections of salt solution do good in some cases, but appears to rely more on the effect of intra-venous saline injections.

33. Intra-venous saline injections.

In the Eppendorfer Hospital at Hamburg, in the stage of collapse, 20 minims of camphor oil were injected hypo-dermically every hour or half-hour, and if the condition became worse and the circulation drained of fluid, 2 to 4 pints of salt-and-water were injected into the vein of the arm, and if necessary into the vein of the other arm or leg. Generally the patients are so lethargic that they do not seem to feel the prick of the syringe. The salt-and-water injection was given only in extreme cases at Hamburg, and, with the exception of one girl, the writers—the Misses Kenealey—did not see any patient live long after it.

On the other hand, **Dr. Rieder**, of Hamburg, considers that intra-venous infusions of salt solution are of the greatest benefit, 2 or 4 litres being well borne by the patient. A solution recommended by **Dr. Linn** is as follows:—

R	Sodii chlorid....	...	...	...	...	℥ii
	Sodii sulphat.	...	...	...	...	ʒiiss
	Aq. distillat. ...	...	...	...	...	Oi
Misce.						

This is warmed to 99° F. and injected into one of the veins of the arm or the saphenous vein of the leg.

34. Intra-arterial saline injections.

Dr. O. Silbermann (*Deutsch. Med. Woch.*, Sept. 8, 1892), whilst recognising the value of sub-cutaneous and intra-venous injections of saline fluids in cholera, points out that owing to stagnation of the thickened blood in the venous system, it may be far better sometimes to inject the fluid into the arterial system in a manner

similar to the form of arterial transfusion introduced by Landors and Ungar. The radial artery is laid bare for a short distance, the peripheral end of the exposed vessel secured by a ligature and the central by the forceps. The apparatus consists of a funnel-shaped receiver of 500 to 600 centimètres' capacity, terminating in a T-shaped tube with which is connected a syringe, the vertical limb being attached to the rubber-tube, which ends in the nozzle that is afterwards inserted into the artery above the point of ligature. This insertion does not take place until the tube and syringe have been filled with fluid and all the air driven out. The fluid is then pumped into the artery, towards the heart, by means of the syringe; and the process of filling the syringe and repeating the injection is readily effected without any risk.

35. For the thirst, Dr. Cantani allows small quantities of water or ice, old red wine, champagne, or lemonade made with lactic or hydrochloric acids. In the Hamburg epidemic, in some wards ice was given *ad libitum*, the patients crying for it even when pulseless, cold, and collapsed. In other wards ice was not approved, but hot drinks were given to encourage the action of the skin. The patients generally were allowed as much tea or coffee (without sugar) and seltzer water as they wished, some taking as much as 6 pints of the latter during the day.

36. For the vomiting Dr. Linn recommends champagne or cognac in tablespoonful doses, every hour, or menthol in 4-grain doses.

37. For the cramps bags or bottles of hot water are recommended, or sand with dry friction, or rubbing with camphorated liniments; or flannel bandage wet with turpentine and warmed with a hot iron is also advised. Dr. Sansom recommends inhalations of chloroform vapour alternating with inhalations of amyl nitrite.

38. Hot baths, in the collapse stage, are recommended by Dr. Sansom at a temperature of 100° F. The patient should be allowed to remain in the bath during this stage, the soiled water of the bath being disinfected before removal from the sick room. In many cases the wet pack may be substituted.

39. Lactic acid in cholera.

Lactic acid is recommended by many when the stools become choleraic: 2 drachms are dissolved in a quart of sweetened water, and this quantity may be given in small wineglassfuls every two hours.

40. Sulphuric or sulphurous acid in cholera.

Surgeon-Captain Hehir (*Practitioner*, Nov., 1892) writes that he has been in the habit for years of administering drachm doses of

sulphurous acid as a prophylactic against cholera, and he has given it now in 7,000 instances, and for the last three years has not seen or heard of cholera in any case in which it was used; but of late he has adopted **Surgeon-Lieut.-Col. Lawrie's** suggestion, and used dilute sulphuric acid. Mr. Hehir believes salol is no more valuable in cholera than many vaunted specifics, and though **Löwenthal** held that salol killed the comma bacillus, he has found it active in the cholera dejecta of patients under salol treatment.

41. Injections into the bladder.

Dr. C. Barth (*Deutsch. Med. Woch.*, Sept. 8, 1892) suggests that the absorbent surface of the mucous membrane of the bladder should be utilised for the introduction of water into the cholera organism. The scanty concentrated urine found in the bladder after death in cholera seems to indicate the reabsorption of urinary water, under the influence of the increased density of the blood in the vessels. Copious injections of the saline fluid into the viscus may therefore fulfil the main indication of the choleraic state.

42. Per-iodates in cholera.

During the later period of the Hamburg epidemic, the per-iodates were used with, it is stated, marked advantage and decrease in the mortality.

The following methods of administration of the drugs have been followed in the cholera barracks of the Seamen's Hospital. The drugs are now being tried in the Seamen's Hospital upon various ailments, native and imported from various parts of the globe.

There are two principal drugs employed—the crystals of per-iodate, which are powdered, and a per-iodate of iron. The last-named is used in such cases as demand an extra-strong nerve or cardiac stimulant, and where there are severe neuralgic symptoms. The first-named is used in several ways. First, as a powder to disinfect the alimentary tract. Second, as a plain water solution, prepared by boiling, and used as a beverage by patients to wash out the stomach in severe vomiting, which abates as soon as the walls of the stomach begin to absorb the fluid, whereby the nervous energy is stimulated, in from a few minutes to an hour or two; for transfusions under the skin, and, in cases of collapse, into a vein, for restoration of the suspended circulation of the blood. Third, an acid solution of the powdered crystals of much greater strength than the plain water preparation is found to stimulate the liver and kidney and gall-bladder, promoting a free secretion of bile.

The effect of the treatment in cholera is alleged to be very marked and speedy. In a case of collapse, with all the severest

symptoms present, the patient is placed upon the bed and copious draughts of per-iodate are given and repeated until a sufficient quantity is retained. Meanwhile, the transfusion solutions are ready in the hot-water bath, and usually within five to ten minutes one to two litres are run under the skin by a double cannula. In about fifteen minutes the fluid is absorbed into the tissues and passes into the circulation, which is thereby restored, and the pulse and the heart-beats return. In some cases the fluid is run direct into a vein, usually of the arm, but where this is so far contracted as not to admit of the smallest cannula, a vein of the thigh is opened. But even these larger veins will sometimes not receive the instrument, and such a case is hopeless.

Recently **Mr. Weaver** gave a demonstration of the chemical and physiological actions of the per-iodates before the hospital staff and several visitors, including Dr. Cornel, Professor Koch's confidential assistant, and a well-known bacteriologist. During the lecture several severe cases were admitted into the ward. Practical illustrations were also given, during the lecture, of the new method of physiological examinations of new patients and of those under treatment for some days. From the new patients **Dr. Cornel** showed the presence of swarms of cholera bacilli possessed of intensely active movements when shown under the microscope magnifying 1,000 diameters. From the patients under treatment neither toxins nor bacilli were obtained. From the experience gained in the treatment of cholera **Mr. Weaver** is of opinion that the cure of the disease necessarily implies its prevention also by the same means.

INSTRUCTIONS ISSUED BY THE ROYAL COLLEGE OF PHYSICIANS OF LONDON, SEPTEMBER 3, 1892.

Every case of this disease requires separate consideration and management. No stereotyped plan of treatment would prove to be either wise or safe, and usually before the choleraic nature of an attack could be established, medical assistance would have been procured. The chief instructions to be followed for the prevention of diarrhœa and of cholera are herewith appended:—

1. As cholera is not in the ordinary sense of the term contagious, as it is rarely, if ever, communicated like small-pox or scarlet fever, directly from person to person, as it is probable that those engaged in attendance upon patients suffering from this malady are not more liable than others to become attacked with it, and as it is certain that physical and moral depression favour the reception and development of the disease, apprehensions should

be allayed, confidence encouraged, and that manner of living pursued which experience has proved to be conducive to the highest health.

2. The house should be clean, light, thoroughly dry, and well ventilated. Air-shafts, traps, and drains should be in perfect working order. Dustbins should be frequently emptied, and no decaying matters of any kind should be permitted to remain in or near the house. Cisterns, reservoirs, casks, jars, and pipes used in the preserving, carrying, or transmitting of water should be frequently inspected and carefully cleansed. All connections of waste pipes with drains should be severed.

3. As water is one of the chief agents by which choleraic infection is conveyed, all water employed for personal and domestic use in the household should be scrupulously protected from contaminations of every kind, and, if any doubts of its purity arise, the water should be boiled, filtered, and consumed within twenty-four hours. Boiled and filtered rain-water is probably the best of all waters for use at this time.

4. The dietary should consist daily of three or four simple but nourishing and ample meals, taken at regularly recurring times. The meals may consist of any sort of animal food, fresh and thoroughly cooked, of bread, potatoes, well-boiled green vegetables, if they agree, and of plain farinaceous puddings, or of simply-cooked wholesome fruit. Milk should be boiled before use. Alcoholic beverages should be taken in great moderation, and only at the greater meals, such as at dinner and supper. It is desirable to avoid soups, tinned or otherwise preserved provisions, raw or stale vegetables, unripe, over-ripe, or decaying fruits, pastry, cheese, nuts, hard or indigestible things of every kind, malt liquors turning "hard," ginger beer, strongly-acescent sparkling wines, coarse oatmeal gruel, messes between meals, and either long fasts or too frequent feeding.

5. All provisions should be procured fresh, but when some storage is unavoidable, the most scrupulous care should be taken to protect them from contamination by impure air or water. Cooking utensils should be scalded after use, and kept carefully clean.

6. Avoid the use of strong aperients, and especially of strong saline aperients. If there is obstinate constipation, take at bedtime either a teaspoonful of Gregory's Powder or one or two teaspoonfuls of castor-oil.

7. Avoid excess and irregularities of every kind, over-fatigue, prolonged watchings, emotional excitements, undue mental strain, and all such things as irritate and exhaust the nervous system.

Especially avoid the frequent use of alcoholic or of any stimulants to cover recurring sensations of sinking, *malaise*, or depression.

8. Take moderate exercise twice daily. Follow early hours, and aim at leading a regular, an occupied, and a tranquil life.

9. If, notwithstanding this careful regulation of the manner of living, looseness of the bowels should set in, send immediately for medical assistance, since without personal examination and direction no case of this kind, arising in such circumstances, can be satisfactorily or even safely managed. But if medical assistance is not immediately available, follow the subjoined instructions until the doctor arrives :

10. Choose, if practicable, a bright, airy room ; go at once to bed, keep quite warm, and if troubled with cramps or pains, apply hot applications to the entire stomach.

11. Take freshly-prepared fluid or semi-fluid food, in quantities of a large cupful at a time, regularly every three hours. Such food may consist of boiled milk thickened with rice flour, baked flour, or biscuit powder ; of tea made with boiling milk infused about five minutes, and having toast, biscuits, or rusks soaked in it ; of farinaceous puddings of the nursery sort ; of any kind of gruel, except that made with coarse oatmeal ; of meat jelly, of beef tea, or of mutton, chicken, or veal broth. If pain persists, with depression or faintness, take a tablespoonful of brandy or of whisky in a small claret glassful of hot water after meals, twice, thrice, or four times in the course of the twenty-four hours, but not oftener than is absolutely required for relief.

12. If thirst becomes excessive, sip from time to time small quantities of iced water, just sensibly acidulated with fresh juice of lemons or with aromatic sulphuric acid.

13. As soon as possible after looseness of the bowels has begun, take in capsules or in hot milk, or in any other manner preferred, two teaspoonfuls of castor-oil. If, when the action of the oil may be fairly supposed to have ceased, the looseness increases to a watery diarrhœa, let the hips be well raised, and carefully inject into the bowels a quart or more of hot water containing 2 drachms of benzoate of soda or 30 grains of tannin. Furthermore, if there be much pain in the bowels, 15 to 30 drops of laudanum may be added to the injection. The injection should be retained as long as it is comfortable to the patient, and it may be repeated once or twice daily during the continuance of the diarrhœa, and until medical assistance has been procured.

14 and 15. [After the administration of the injection, if one has been found necessary, mixtures are prescribed according to the urgency of the symptoms.]

16. From the first appearance of the looseness of the bowels, the body should be washed with warm water night and morning and quickly dried. Soiled bed or other clothing should be immediately disinfected and destroyed.

A cheap and efficient disinfectant fluid is recommended by Dr. Thorne Thorne, and is thus prepared: Dissolve $\frac{1}{2}$ ounce of corrosive sublimate and 5 grains of commercial aniline blue in 3 gallons of water, and add thereto 1 fluid ounce of hydrochloric acid. Preserve in earthenware jars or wooden tubs.

17. All further general precautions necessary to be taken at this time are admirably set forth in the memorandum issued on August 26th by the medical officer of the Local Government Board.

ANÆSTHETICS.

By DUDLEY BUXTON, M.D., B.S., M.R.C.P.

Anæsthetist and Instructor in Anæsthetics in University College Hospital, and Anæsthetist to the Hospital for Epilepsy and Paralysis, Queen's Square, and the Dental Hospital of London.

I.—ANÆSTHESIA FOR SHORT OPERATIONS.

1. Nitrous oxide produces a period of anæsthesia lasting from twenty-two to thirty seconds, or occasionally longer. It is, broadly speaking, safe for inhalation by any person, and free from after-effects.

Prepared by heating nitrate of ammonium, it is best obtained from the makers, who keep it stored in cast-iron or steel bottles, into which the gas is forced under a pressure of 50 atmospheres, when it assumes the liquid state. The bottles are made to lie horizontally or stand vertically, and give exit to the nitrous oxide, which resumes the gaseous state on leaving the bottle—by a screw tap, which can be controlled by the hand or foot. A tube of 3 feet or so in length leads the gas into a Cattlin's bag. This has a capacity of a gallon and a half to two gallons. This bag is attached either to a Clover's face-piece, furnished with an expiration valve, or a Barth's patent face-piece, which has an arrangement by which an expiration valve can be used or not, at the administrator's discretion. When no expiration valve is employed the Cattlin's bag becomes a "supplemental bag," the patient re-breathing the gas as it quits his lungs. The iron bottles are made to contain 25, 50, or 100 gallons, and the quantity contained is calculated by weighing them, the constants being the known weight of the empty bottle and the weight of 100 gallons of nitrous oxide gas, viz., 30 ounces.

2. The administration of nitrous oxide.

The patient sits in a chair, having loosed tight waistbands, corset, or neck collars; the face-piece is accurately adjusted so that no air can enter between it and the face. The Cattlin's bag is filled as noiselessly as possible by turning the handle or foot key, and kept full throughout the whole period of anæsthetisation. The cock supplying gas to the face-piece is opened as the patient

inspires, and he is allowed to inhale the gas until the breathing grows stertorous or jactitation commences. Some anæsthetists recommend that as soon as anæsthesia begins to appear—manifested by unconscious, *i.e.*, regular, deep respiration—the expiration valve should be closed, and the supply of gas being cut off, the patient made to breathe to and fro into the Cattlin's bag, or into a "supplemental bag" * [see Hewitt's "Nitrous Oxide and Ether," p. 25. Ballière, Tindall and Cox]. A second administration at one sitting is liable to produce malaise. It is wise to abstain from a meal for an hour or so both before and after taking nitrous oxide gas. **After-effects:** *Faintness, respiratory failure, laryngeal spasm* are described as occasionally having occurred. Lowering the head, assisting respiration by Howard's method, or in very extreme cases laryngotomy, constitute the treatment.

3. Nitrous oxide mixed with oxygen.

Paul Bert's method (1875-80) † of using mixtures of nitrous oxide in conjunction with oxygen has recently been revived by Klikowitsch, Hillischer, and Hewitt.‡ It is urged that the employment of this mixture obviates cyanosis or jactitation, produces an equally prolonged or longer period of anæsthesia which is more placid, and approximates more closely to natural sleep. Upon the other hand, the apparatus employed is less simple, the signs of anæsthesia are less clearly defined, and the after-effects not so free from inconvenience as when nitrous oxide is employed by itself. Bert employed the mixture under pressure. Hillischer discards this, and his and Hewitt's apparatus enables the administrator to employ varying proportions of the gases as the exigencies of the case require, for they find it is undesirable to use any fixed proportion, some persons needing one proportion, some another. Bert was able to prolong anæsthesia by continuous inhalation sufficiently for the performance of major operations. At present the mixture when given without increased pressure has been used only for minor operations. Hewitt's latest apparatus, made by Barth and Co., Poland Street, consists of two Cattlin's bags, one connected with a cylinder of oxygen, the other with one of nitrous oxide. Their outlet tubes communicate and have an arrangement whereby an approximate percentage mixture is obtained. The bags are carefully maintained equally distended, and the supply of oxygen

* A bag of small capacity fixed to the face-piece, from which it is guarded by a stop-cock. I think this method in many cases produces after-headache and nausea. See also "Analysis of One Thousand Cases of Nitrous Oxide," by Dr. Silk (*Transactions of Odontological Society*, June, 1890).

† For full account see "Anesthésie Chirurgicale," par le docteur Rottenstein. Paris, 1880.

‡ "Schlafgas," by Dr. Hillischer. Wien, 1891, See also *Odontological Society's Transactions*, June, 1892.

is controlled by a handle revolving on the dial. The two bags are half filled, and most accurate coadaptation of the face-piece is obtained. A small percentage of oxygen is given at first (indicator at "2"). This percentage is soon increased until the indicator has travelled to "5," "6," "7," and "8," although "6" is usually sufficient. Tendency to laughter or excitement indicates too much oxygen; commencing jactitation, cyanosis, or stertor, that too much nitrous oxide has been given. The reliable signs of anæsthesia are stated to be loss of conjunctival reflex, muscular flaccidity, fixation of ocular globes, soft snoring breathing. One or more of these may be absent. The mixture is recommended (1) for children; (2) for anæmic and debilitated persons; (3) persons who remain unconscious too short a time under nitrous oxide; (4) persons who are advanced in years.

4. Nitrous oxide mixed with air.

Arguing from the satisfactory results of giving oxygen with nitrous oxide, **Mr. Rowell** (*Journ. of Brit. Dental Association*, Oct., 1892) has employed the following method:—The ordinary nitrous oxide apparatus being supplied with a Barth's patent face-piece, gas is given for twelve or eighteen breaths; the air-way is then quickly opened during expiration by turning the valve, and the patient allowed one breath of air. During the ensuing expiration the valve is again turned, and the patient resumes the nitrous oxide inhalation. After five or six respirations, this manœuvre is repeated, and so on. Signs of struggling or excitement indicate less air is to be given. It is suggested that this method allows the nitrous oxide more time to become absorbed into the blood, by delaying the onset of symptoms due to deprivation of oxygen. It is useful for children, anæmic and weakly persons, but contra-indicated for alcoholics, vigorous men, and persons who show tendency to struggle and grow excited under nitrous oxide gas.

5. Bromide of ethyl.*

Must not be employed for operations lasting over forty minutes. For brief operations (*e.g.*, tooth-extraction) it has been recently extensively used in France and Germany and in England by **Dr. Silk**. It is given like ether, all air being excluded and an Allis' or Ormsby's inhaler employed. Palatine stertor, or loss of conjunctival reflex, are the signs relied upon as indicating that true anæsthesia has been attained. Recovery of consciousness very rapidly occurs. Both the pulse and respiration are to be watched, as heart-failure (**Wolff** and **Lee**) and respiratory

* See "Bromide of Ethyl in Dental Practice," by Dr. Silk; *Transactions of Odontological Society*, February, 1891; *Journal of British Dental Association*, March, 1891; *Practitioner*, May, 1891; Dastre, "Anesthésiques"; *Asclepiad*, 1885; Squire, International Medical Congress, 1881.

paralysis (Ott) have occurred under its use. This substance is both liable to commercial impurities and deterioration by keeping. The after-effects consist of nausea, malaise, excitement, and may follow even a very small dose (3j).

6. Pental (amylene).

Introduced and spoken well of by Snow (1856); it has recently been employed in short operations by Prof. Holländer,* of Halle. He uses Junker's inhaler, 10 to 12 c. cm. of pental being sufficient for a tooth-extraction. Pental is as inflammable as ether, and possesses an unpleasant odour, and is said to produce an insensient sleep, during which the patient will open his mouth if desired to do so. The onset of unconsciousness is gradual, and unmarked by special phenomena, and the recovery is gradual also, analgesia being said to persist even after anæsthesia has vanished. The after-effects are said by Prof. Holländer to be *nil*.

Prof. Wood and Dr. David Cerna, of Philadelphia (*Cosmos*, July, 1892, p. 510), have experimented with pental, and find it to be a powerful cardiac depressant, as well as causing a marked fall in arterial pressure. They assert that it "will probably be a dangerous anæsthetic, and if extensively used will produce death by cardiac arrest."

II.—FOR PROLONGED OPERATIONS.

1. Ether.

Is best given in combination with nitrous oxide gas. When this is done, all struggling, inconvenience to the patient, due to the disagreeable odour of the ether, and loss of time are avoided. The best apparatus is Clover's gas and ether inhaler.† Unconsciousness is obtained by inhalation of gas, when by turning on the ether-tap the gas passes over it, and is impregnated with ether. After a few breaths of this, the gas is turned off, and ether is given alone throughout the administration. The patient at first becomes rigid, the rigidity passes into muscular flaccidity; this, with loss of conjunctival reflex, gives evidence of insensibility. During prolonged operations the inhaler may be frequently removed and re-applied at intervals. The respiration and colour of the patient's face must be carefully watched throughout the inhalation. If any respiratory spasm or failure, or cyanosis, occur after the anæsthesia is once established, the ether is to be removed, and means adopted to re-establish breathing. As a rule, a few pressures upon the chest will suffice; failing this, artificial respiration (Sylvester's and

* See, among other papers by Prof. Holländer, *Cosmos*, pp. 211, 724 (Philadelphia).

† See "Anæsthetics," p. 41, Dudley Buxton, 2nd edition. Lewis. Also, "Select Methods of Giving Ether and Nitrous Oxide," p. 44, Hewitt.

Howard's methods) should be commenced. It is assumed that in every case the patient is in the prone position, is freed from all constricting clothing, has had all tooth-plates, etc., removed, and has abstained from food for four or six hours before the administration.

When ether is given alone, any of the following apparatus may be used :—Clover's smaller regulating ether inhaler,* Allis' ether inhaler,† Ormsby's inhaler‡; or a cone extemporised by rolling a piece of poroplastic and fixed with some sticking-plaster enclosing a sponge, answers fairly well. The aim should be to give air at first, gradually increasing the amount of ether vapour until complete anæsthesia is attained (two to three minutes). After this, the inhaler is to be removed at every sixth or eighth respiration for one complete expiration and inspiration.

Muscular rigidity, coughing, turgescence, and movement are, as a rule, signs of incomplete anæsthesia, and pass off on pushing the anæsthetic. The catchy, jerky respiration liable to occur when ether is used may hamper the surgeon in operations on the neck and the abdomen—*e.g.*, extirpation of cervical glands, nephrectomies, abdominal sections. In these cases many operators prefer the use of the A.C.E. mixture or chloroform.§

The after-effects—nausea, sickness, headache—are proportionate to the length of time the patient is kept under the anæsthetic. Very hot water swallowed in small draughts is the best treatment. Tendency to bronchitis or pronounced renal disease makes ether inadvisable unless chloroform is likely to prove even more undesirable. Operations on the brain require a feeble circulation, hence chloroform with morphine ($\frac{1}{3}$ gr. just before the administration) is better than ether. Etherisation|| per rectum has been used for operations on the mouth, jaws, tongue, palate, for empyema, etc. Ether is volatilised from a special apparatus constructed so as to prevent any liquid ether from entering the bowel, and led into the rectum by a tube. The patient becomes unconscious in from three to five minutes. There is no struggling, some abdominal discomfort is complained of, and the after-effects are either wholly absent, or when present consist of intestinal or gastro-intestinal catarrh—these may be very grave. The anæsthesia is singularly placid and profound, but rapid recovery of consciousness takes place when the ether is withheld. Care and practice are

* "Anæsthetics," 2nd ed., p. 74.

† *Ibid.*, p. 83.

‡ Braithwaite's "Retrospect," vol. lxxv.; and *British Medical Journal*, 1877, vol. i.

§ On this subject see "Anæsthetics in Gynæcology" (*Transactions of British Gynæcological Society*, January, 1893).

|| See article in "Anæsthetics," 2nd ed., p. 86, Dudley Buxton.

required for this plan, which, while it answers most satisfactorily in many instances, leads to calamitous consequences in a certain number of cases.

2. Chloroform.

Chloroform inhaled of a certain percentage strength (over 5 per cent.) kills by cessation of respiration. It is asserted that death also occurs through primary cardiac failure.* The experiments of the Hyderabad Commission (*see* "Report"), which more recent experiments have, according to Surgeon-Colonel Lawrie, confirmed, discountenance the view that chloroform ever kills by the heart. Prof. Wood, of Philadelphia (*Medical Press*, Philadelphia, Feb. 22, 1890), and experimenters in England, adhere to their opinion that the heart is the initial point of failure, and McWilliam has found that the muscle of the heart relaxes under chloroform, and, if a certain dose enters the blood, fails through inability to contract to its normal standard. Drs. Gaskell and Shaw (*Brit. Med. Journal*, Nov. 21, 1891) investigated this matter by connecting the nervous system of one rabbit (A) with the blood supply of a second (B) (the feeder). By this means rabbit A's heart and all parts except its nervous system were free from any influence exerted by chloroform, except such as was exerted *quâ* the nervous system. When the feeder (B) took chloroform, A's blood-pressure rose, its respiration slowed, and it became insensible. When A took chloroform, although its nervous system was fully protected, its blood-pressure fell and its inspiration also slowed. The best methods of administration are probably the "open" or Scottish plan of dropping chloroform on a towel, or the use of Junker's inhaler. This has been usefully modified. The mask is a Skinner's flannel cap, into which a delivery-tube passes, and as this is perforated by many holes, a fairly uniform distribution of vapour occurs. The makers, Krohne and Sesemann, have also devised what is called a respiration register. This is a feather attached to an expiration-valve, which moves with expiration. This inhaler is useful, but it cannot be relied upon as excluding all chances of fatalities. Failure of respiration must at once be treated by artificial chest respiration (Sylvester's method), aided by abdominal pressure (Howard's method). The right hand of the assistant should press beneath the costal border on the patient's left side, thus stimulating the heart. This plan is said to have succeeded when death appeared imminent in spite of ordinary measures for resuscitation. For syncopal attacks, inversion (Nélaton's system), injections of ether, strychnine, inhalations of nitrite of amyl are useful. For "shock," rectal injections of hot water prove valuable.

* *See* Dudley Buxton, *Brit. Med. Journal*, Oct. 29, 1892.

GENERAL SURGERY.

BY STANLEY BOYD, B.S., F.R.C.S.,

Surgeon to the Charing Cross Hospital, and to the Paddington Green Hospital for Children.

I. New operations, and new methods of operating.

For outstanding ears.—A. H. Tubby (*Brit. Med. Journal*, 1892, ii. 1203) removes an elliptical piece of skin, not more than 1 to $1\frac{1}{2}$ in. broad, from the back, divides and grooves the concha at its most prominent part (taking care not to buttonhole the skin), passes two or three deep sutures through the skin beneath the surface of the wound, and then draws the pinna close to the head. Healing occurs readily, and only a small scar is visible. The concha must be thoroughly grooved, and enough skin removed to prevent excessive mobility of the pinna.

An improvement in the operation for hydatid cyst.—G. N. Stephen (*Brit. Med. Journal*, 1892, ii. 577). After exposing the cyst freely, the ectocyst is to be slightly pushed with the finger from its surroundings; then a tube, connected with an irrigator of twice-boiled water at 105° to 110° and raised 8 ft., is passed along the finger. The stream detaches the ectocyst, and forces it untorn from the wound. Irrigation is continued till all shreds have been washed out. A dry dressing (mercuric wool) is then applied.

The use of glass tubes for draining the bowel in colotomy, excision of the rectum, intestinal obstruction, and colectomy.—

F. T. Paul (*Brit. Med. Journal*, 1892, ii. 174; see "Year-Book," 1891, 207).

Further experience confirms the value of these tubes (Fig. 1). In inguinal colotomy, draw out gut, pack round with aseptic gauze, make a hole in the convex border large enough to admit tube previously plugged with wool, insert tube and fix with a tight ligature (Paul uses few or no stitches); dress the wound and cover with jaconet, through which the tube projects. If much fæces is expected, catch in a basin; if little, a jaconet bag filled with absorbent wool

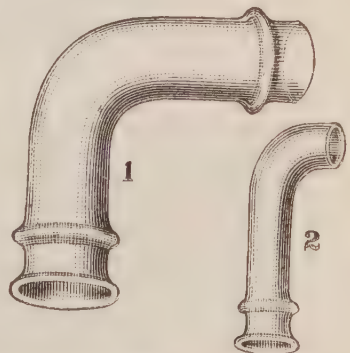


Fig. 1.

1, for Colon, 5×1 in., double rim at bowel end; 2, for Small Gut. (Made by C. Wright & Co.)

and tied on to the tube serves. The tube causes no inconvenience, and remains secure for three to six days.

In three cases of Kraske's excision of rectum, there was no

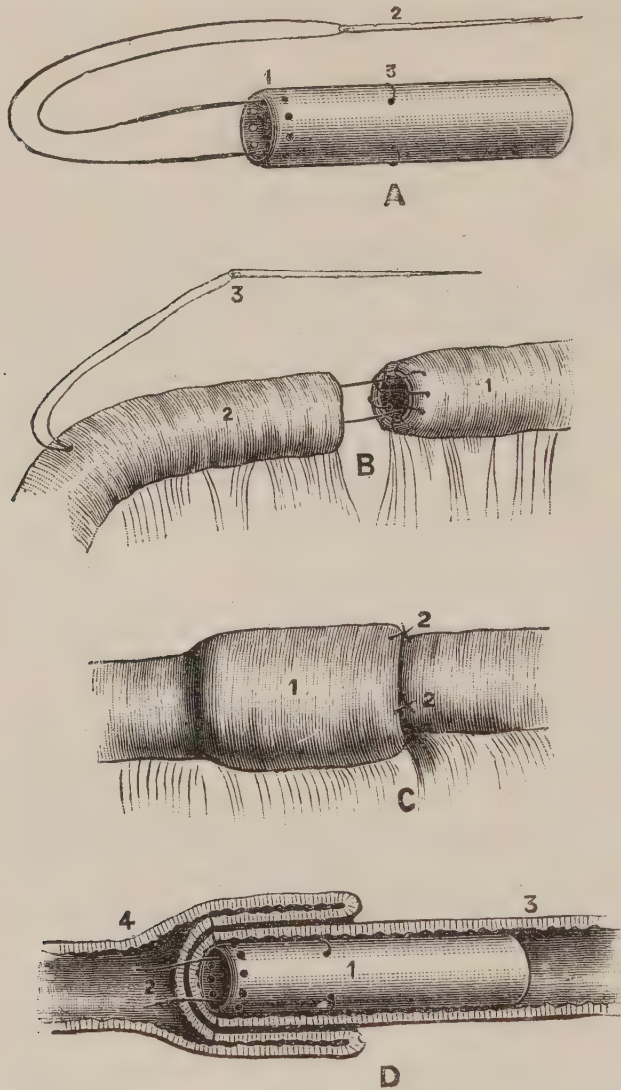


Fig. 2.—F. T. PAUL'S ENTERORRHAPHY (*pp.* 201-3): A, Decalcified Bone Tube : 1, Distal end perforated for sewing to bowel; 2, traction thread with long sewing needle attached to tube at 3. (*Made by Reynolds, 9, Rodney Street, Liverpool.*) B: 1, the proximal end of gut with the tube sewn in; 2, the distal end not yet sewn to the proximal end, but with the traction thread 3 passed. C, The Operation completed: 1, the sheath of the invagination; 2, the Lembert sutures. D, the parts Dissected: 1, the tube *in situ*; 2, the traction thread cut short; 3, the proximal end of bowel entering the intussusception; 4, the distal end supplying the returning and ensheathing layers.

difficulty, with a tube tied in, in keeping the immense wound aseptic for four to five days, though no preliminary colotomy was done, and quantities of faeces escaped daily.

In three cases Paul inserted a small tube into distended small gut above a relieved obstruction, and then attached the gut to the wound with fine catgut: the fæces are conducted to a bottle by a rubber tube. The fistula which would result ought not to be hard to close; but Paul's cases all died early from causes unconnected with the tube. (*See Greig Smith, p. 238.*)

Of four colectomies which Paul has done for malignant growth, only one has lived; in this a tube was inserted above and below a growth of the sigmoid flexure, and the growth excised between them.

Mayo Robson (*Brit. Med. Journal*, 1892, i. 65) in cases of colotomy and enterostomy, in which it is desirable to open bowel at once, inserts a large trocar and cannula, the latter having a side branch, to which a rubber tube is attached. This cannula is secured

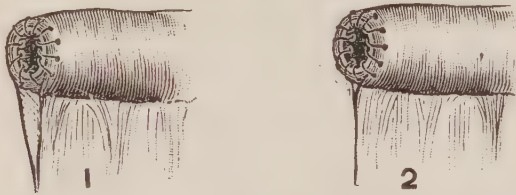


Fig. 3.—F. T. PAUL'S ENTERORRHAPHY (pp. 201-203): 1, showing the cut mesentery improperly allowed to gape; 2, the mesentery drawn together; but the diagram wrongly indicates a stitch passing through the bowel *without* piercing the mesentery.

in the gut. The trocar, like Southey's, is introduced into the cannula through a bit of rubber tubing tied up at its free end.

Enterorrhaphy.—Since the introduction of Senn's plates many surgeons have attempted still further to simplify and to shorten

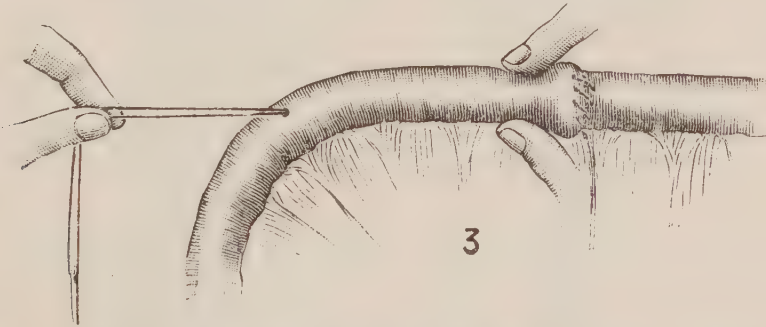


Fig. 4.—F. T. PAUL'S ENTERORRHAPHY (pp. 201-3): Producing the Invagination *immediately* below the cut.

the reunion of severed intestine, and especially the junction of pieces end to end.

F. T. Paul (*Clin. Soc. Trans.*, 1892, p. 229, and *Lancet*, May 30, 1891) gives the following. A bone tube (Fig. 2, A), to which is attached a needle and a double silk thread ("traction thread"), is

inserted into the proximal end, the edge of which is rapidly sewn to the end of the tube by a continuous thread (Fig. 2, B), which

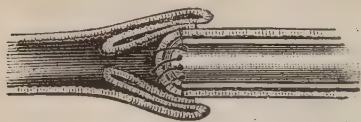


Fig. 5. — F. T. PAUL'S ENTERORRHAPHY (pp. 201-3): The Invagination carelessly produced. The Lumen of the Bowel is partly closed, and the line of suture barely covered.

includes the serous sides of the mesenteric triangle in such a way, that *no space is left* between them and the gut (Fig. 3). The needle and traction thread are passed from within out through the wall of the lower piece, about 3 in. down (Fig. 2, B). The two cut ends of bowel are quickly attached by a continuous suture, and the wound in the mesentery is united. An assistant now draws

steadily on the traction thread, whilst the operator produces a short invagination of the upper into the lower piece, beginning

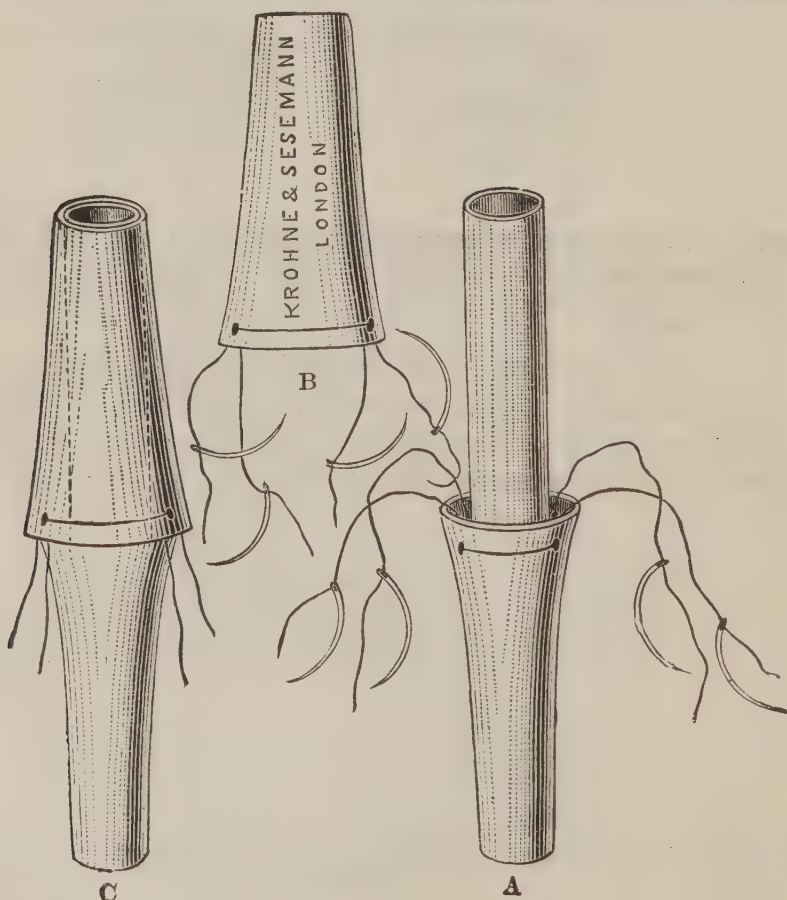


Fig. 6.—JESSETT'S ENTERORRHAPHY (p. 203): A, Male tube; B, female tube; C, tubes put together. (Made by Krohne and Sesemann.)

immediately below the line of union (Figs. 4 and 5); this is retained in position by four Lembert's sutures (Fig. 2, c). The

traction thread is drawn tight and cut off, its ends dropping into the gut. The method has been used for large gut, but, owing to absence of sufficient mesentery, the invagination is unsatisfactory. The method is thoroughly reliable only for small gut.

B. Jessett (*Brit. Med. Journal*, 1892, i. 703) effects Jobert's suture without the traction thread, by fastening each end of the gut to a bone tube (Fig. 6); that in the upper end (male) is cylin-

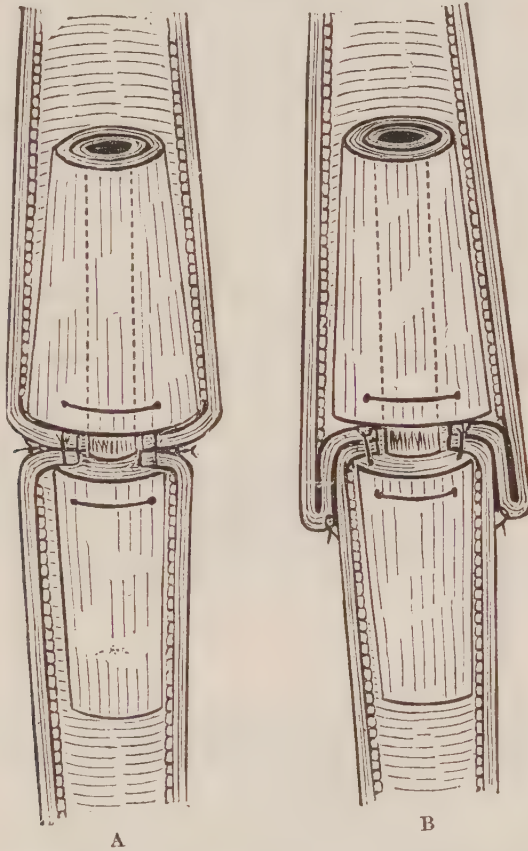


Fig. 7.—JESSETT'S TUBES *IN SITU*: A, ends of gut approximated; B, invagination produced. The male tube is below.

drical, and the gut is fastened by four threads to a flange half-way down it; beyond this flange the tube can be pushed into the conical female tube in the lower end, until the flange lies just within the base of the cone, and the two ends of bowel are thus pressed together; the corresponding catgut threads are now tied, two of them being passed on each side of the mesentery, the other equidistant from these and from each other (Fig 7, A). The proximal end is now invaginated into the distal for $\frac{1}{4}$ to $\frac{1}{2}$ in., and fixed there by four Lembert's sutures, one being on each side of the mesentery (Fig. 7, B). The plan proved successful in dogs, and Jessett

believes that the union at the mesenteric edge will be unusually secure.

Mayo Robson read a paper before the Royal Medico-Chirurgical Society (*Trans.*, 1892), describing the use of bone "bobbins" in enterorrhaphy after enterectomy. They can be used also in ileocolostomy, gastrostomy, gastro-enterostomy, short-circuiting of bowel, and cholecyst-enterostomy. The "bobbin" is shaped like a short cotton-reel, with prominent rims and a very wide channel through it. It is slipped into the lumina of the viscera to be united; a marginal suture is first inserted all round to unite the mucous membrane, and then a Cushing's right-angled continuous subserous suture is inserted about one-third of an inch from the edge, and tightened when the insertion is complete. The bobbin holds the edges to be sewn well up. [No published account of this method has yet appeared.]

H. W. Maunsell (*Am. Journal Med. Sci.*, March, 1892) describes a method which he devised some ten years back; it has the great merits of simplicity, rapidity, and efficiency; no special tubes or

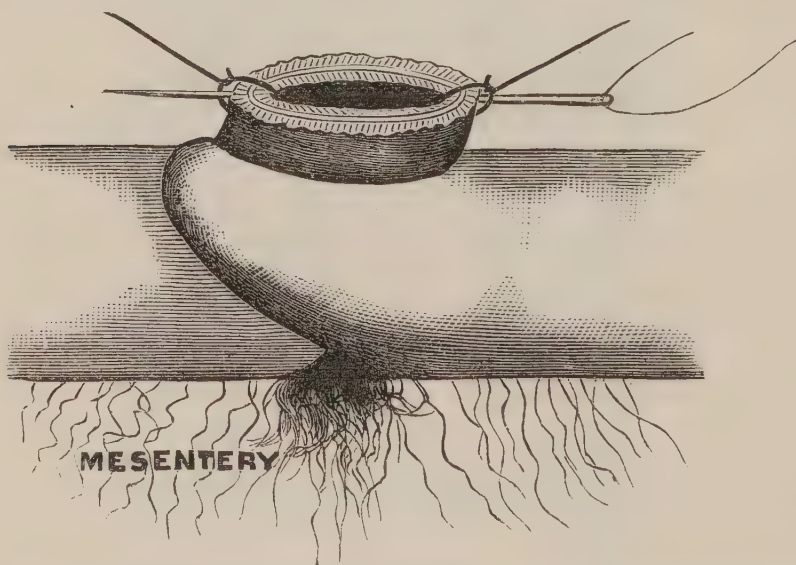


Fig. 8.—Invagination produced by traction on Sutures; first needle being passed through two layers of gut on each side of Lumen.

other instruments are required. The bowel to be excised is emptied, and clamped with a large safety-pin passed through the mesentery and pressing on a piece of sponge. Tie or twist the vessels as they bleed. After the resection bring the ends together by two temporary sutures passed through all the coats—one at the mesenteric (this should close the two mesenteric triangles completely), and the other at the free border; tie them and leave

their ends long. In the larger end, if they differ in size, make a cut $1\frac{1}{2}$ inch long in the free border, about an inch from the transverse section, pass the ends of the two sutures through this opening, and by gentle traction on them, draw the cut ends out through the opening (Fig. 8). The smaller will be invaginated within the larger end, and their serous surfaces will be in contact. If now an assistant holds the bowel up by the two sutures, drawing them gently away from one another, the lumen of the invagination becomes an oval slit, across which needles threaded with horsehair can be rapidly passed, a quarter of an inch from the edge, each needle going through the whole thickness of four intestinal walls; when a sufficient number have thus been passed, the hairs are pulled up from within the lumen, divided, and tied on each side. When all are tied the long sutures are cut short, and the invagination reduced by traction; the uniting stitches can hardly be seen. The longitudinal slit is now closed by one or two layers of continuous horsehair suture. When one segment is much larger than the other, three primary sutures are passed, (1) through the mesenteric borders, (2) through the free border of the smaller piece and the corresponding points of the larger, and (3) through the unoccupied angle of the larger; invaginate through a slit in the larger gut, sew up the interval between 2 and 3, and then proceed as above.

Intravenous injection of saline.—The Journals contain ample evidence that boiled normal saline (Chloride of Sodium ζ i ad Aq. Oi) solution is now freely injected into veins in cases of collapse from hæmorrhage, diarrhœa, and other causes. The writer recently found it of great value in a case of hæmorrhage from an ovarian artery, from which a ligature had slipped. **R. J. Pye Smith** (*Brit. Med. Journal*, 1891, ii. 1150) reports a gunshot fracture of the leg-bones with great loss of blood; collapse; $1\frac{1}{2}$ pint of saline injected into saphenous; marked improvement; amputation; collapse again; $1\frac{1}{2}$ pint injected; pulse and colour at once improved, complete rallying in a few hours; recovery.

A new method of blood transfusion.—**A. E. Wright** (*Brit. Med. Journal*, 1891, ii. 1203). Blood may be kept permanently fluid by precipitating its lime as an oxalate. Wright hopes that blood thus prepared would avoid the objections to defibrinated blood, viz., that it may cause intravascular coagulation, and is more or less disintegrated. Large quantities of blood were drawn from dogs, decalcified, and re-injected after ten minutes, without after-consequences; nor did the injection of one dog with decalcified blood from another cause any. Wright suggests that until information as to the precise amount of oxalate necessary to

decalcify human blood is obtained, small quantities of blood of donor should be drawn into one-tenth their volume of 1, 1½, and 2 per cent. solution of sodic oxalate, and thoroughly mixed; the least amount which will keep the blood perfectly liquid should be selected. The blood should be drawn in successive small quantities, carefully mixed, and kept at blood-heat before injection; thus any portions showing slight coagulation could be rejected, and the rest be injected. Though an excess of oxalate is to be avoided, one need not be very anxious on this head.

A new styptic.—A. E. Wright (*Brit. Med. Jour.*, 1891, ii. 1306). Calcium salts added to blood increase its coagulability. Wright suggests the use of a solution of fibrin ferment containing 1 per cent. calcium chloride. Blood is received into 3 vols. of boiled distilled water, and whipped. The fibrin is washed free of pigment, and placed under alcohol for a few days; when wanted, the alcohol is pressed out between filter paper, and the ferment extracted for some hours in 5 to 10 vols. of boiled distilled water. To this sterile fluid add 1 per cent. calcium chloride. Experiments on dogs showed that a lobe of the liver, a number of mesenteric arteries, both jugular veins, and both axillary veins, could be cut through without killing the animal by bleeding. Wright has had little experience on man. [The writer saw Wright use it in a case of Professor Watson Cheyne's—excision of the upper jaw and removal of a sarcoma from base of skull: the bleeding was slight.] Wright suggests its use in epistaxis, general oozing, hæmophilia.

Evidence is adduced to show that calcium chloride internally increases coagulability; this may be valuable in internal hæmorrhages. The effect of a dose was evident in a few minutes. Judging from dogs, ʒiv of calcium chloride in a pint of water would be a full dose for a man.

2. Antisepsis and Asepsis.

Report on aseptic and septic surgical cases.—C. B. Lockwood (*Brit. Med. Jour.*, 1892, i. 1127) continues this report from 1890. The most interesting part deals with purification of the skin. Lockwood points out that with care in preparing materials and instruments, and with occasional or continuous irrigation to protect against atmospheric germs, the sources of infection of a wound may be narrowed to the skin of the patient or of the surgeon's hands. Halsted, in spite of great pains, found it impossible to disinfect hands so that scrapings of epidermis did not infect culture tubes. Lockwood thinks this too severe a test. After cutting nails short, scrubbing with soap and hot water, and dipping in 1 to 1,000 perchloride lotion, culture plates will not be infected by

handling or even by scrapings. Lockwood believes therefore that hands can thus be sterilised and kept so by occasional dips in 1 to 1,000—a direct contradiction of Halsted's results. But the patient's skin Lockwood regards as much more difficult to deal with ; stained sections of skin of two breasts which had been carefully cleansed showed bacilli and cocci in epidermis and hair follicles. They were probably living, for another bit of similarly-prepared skin, dropped into bouillon, yielded a free growth of streptococci, diplococci, and bacilli. After surface disinfection, the contents of sebaceous glands yielded cocci and bacilli—chiefly bacilli ; sweat yielded them also, but chiefly cocci. [With these results it is difficult to conceive that the surgeon's hands should be sterilised by the same methods less perfectly applied.] Nevertheless, Lockwood holds that certain aseptic cases quoted (*i.e.* tubes inoculated from them remained sterile) proved that the difficulties can be overcome and the patient's skin kept sterile by a dressing similar to that which he uses, *i.e.* iodoform powder over wounds, and 5 per cent. carbolic gauze, wrung out of 1 to 2,000, next wound ; these “doubtless kept it aseptic.” Another factor was the absence of drainage, and accurate adjustment of skin-edges, tending towards dryness and rapid healing—the one preventing growth of any germs present, the other closing the wound against invasion. The writer's view would be that dryness was a main factor in Lockwood's success.

3. Plastic surgery.

The transplantation of skin flaps from distant parts by Wolfe's method.—A. Ceci (*Brit. Med. Jour.*, 1892, i. p. 803). Three very successful cases, with photographs before and after operation, are given. Large areas were covered in, with excellent cosmetic results. In a case of epithelioma, involving the side of the nose, much of the cheek, and all the lower eyelid, Ceci used a flap twisted down from the forehead to make good the defect, and filled in the gap on the forehead by Wolfe's method. Presumably Ceci feared sepsis and sloughing of a Wolfe's flap which should replace the lower eyelid, a bit of the ala nasi, and come close to the angle of the mouth. It is noticeable that in these operations on the face Ceci excised the malignant growths as freely and with as good a margin as if he were dealing with a limb. Little contraction occurred, but always some ; the skin, however, remaining natural in appearance.

Sutures are almost or quite unnecessary—the flap adhering like plaster. It is better to allow two or three days to intervene between the excision and the transplantation, especially if vessels have been tied. Instead of cutting an irregular flap to measure, it

is better to cut one between parallel lines, which can be divided as required.

4. Amputation in diabetes mellitus.

W. G. Spencer (*Med. Chir. Trans.*, June 14, 1892) adduced evidence to show that timely amputation above the knee or elbow for the removal of severe inflammatory complications would prolong life, and greatly reduce the amount of sugar excreted before operation. Gangrene of stump is due to low amputation, the vessels being thrombosed or narrowed. Drugs and diet are powerless to reduce sugar in the presence of a severe inflammation. After amputation, diabetics recover well and heal well. Thus a man with 10 grains of sugar per oz., specific gravity 1040, had suppuration round the lower end of the humerus, with bare bone, and was clearly becoming comatose. After amputation in the upper third of the arm he regained good general health, the sugar sinking to a constant trace, specific gravity 1023.

5. Actinomycosis.

Three cases of this disease were presented at the Med. Chir. Soc. on Nov. 10, 1891—all from Nottingham. A strong opinion was expressed that it was contracted—not from diseased meat, but from raw cereals, *e.g.* ears of wheat and barley. W. H. Ransom: male, 50; after nine days' vague pain in right iliac fossa became acute; a considerable mass formed round cæcum; thrombosis of right external iliac vein six weeks later; aspiration—no result. After four months an abscess burst, near anterior spine, yielding a little offensive pus; opening enlarged, 1 ounce escaped; 10 days later a probe was passed into loin, cut down upon, and a tube drawn through. Fæcal specks now noted in discharge. Sinus explored again at six months, actinomyces' colonies noticed in pus a few days later. Death occurred eight months from onset, and there had been fever for seven. *Post-mortem*: large irregular abscess behind healthy cæcum; appendix tortuous, adherent, patent, yet dilated proximally, with two or three perforations leading into abscess. No actinomyces' grains *in situ*, only a few in pus; but they were found both in pus and walls of a secondary focus in liver. Ransom would search for them in pus of any sub-acute or chronic inflammation, spreading without preference of tissues, but chiefly downwards, feeling hard or even woody, finally softening, bursting, discharging little, and not tending to heal after suitable drainage. W. B. Ransom: male, 48; four months ill with colic, flatulence, occasional vomiting, irregular bowels, and slight frequency of micturition. A resistant tender mass in front of rectum, above prostate. Actinomyces found in one stool, and for some time in urine—but not when drawn by catheter;

laparotomy, swelling was a coil of adherent ileum; β naphthol and calomel, great improvement. **A. R. Anderson** : male, 29; left side of face and neck much swollen, with eight sinuses, and bare bone at bottom of all on face; pus contained yellow granules; flap raised; free erasion of all diseased tissue; in three days no actinomyces could be found; recovery, though some diseased skin had been left.

6. Pyæmia.

Cases showing the possibility of rescue from this disease must necessarily be interesting. In both the following the middle ear, which is peculiarly well situate for the kind of treatment adopted, was the source of infection; but the plan should be borne in mind and its feasibility considered in all cases of pyæmia. **H. H. Clutton** (*Brit. Med. Jour.*, 1892, i. p. 807) : male, 10; discharge from right ear six months, then sudden acute pain; on fifth day sudden lividity and faintness, without convulsions, shortly followed by rigor, and temperature 105° ; repeated rigors, cessation of aural discharge, constant pain, and increasing swelling behind right angle of jaw followed. No optic neuritis, nor mastoid tenderness on 10th day; lungs sound; a little later, pain and swelling over ulna. The right jugular was now exposed below swelling, found empty, double-tied and divided, the upper end being brought out of the wound; good recovery. No rigor, temperature $102-3^{\circ}$ next two days; strength gained. On 13th day disc of bone removed, having centre 1 in. behind and $\frac{1}{4}$ in. above centre of external meatus; subcranial pus evacuated; a syringe drew off pus from lateral sinus, which was slit up and washed out from below. Ulnar swelling incised; no pus, but relief from pain. Left ankle, which had been painful, full of fluid and red on surface for some days; was incised on each side, temperature 104° ; pus let out, wounds left gaping; healing, with recovery of all movements. Slight aural discharge from granulations persisted. The operations were done at intervals, on account of weakness. [Against this the effect of repeated chloroform anæsthesia must be placed.]

Rushton Parker (*ibid.*, 1892, i. p. 1076). (See article on "Diseases of Ear," pp. 429, 430.)

7. Tuberculosis.

W. W. Cheyne, in his Hunterian Lectures (Journals, 1892, June and July), dealt with the "Treatment of Surgical Tuberculous Diseases." The methods employed aim at either (1) strengthening the resisting power of the tissues, or (2) removing or destroying all tuberculous tissue and virus. Those under (1) may act (a) generally, or (b) locally.

(1, a) *Good hygiene*, especially fresh air, and plenty of it.

Change of air is required before operation is thought necessary, and after operation. Choose a place, seaside or high inland, which really agrees with the particular patient, and of which the climate will allow the patient to be as much as possible in the open. The south suits the weakly and those who cannot walk, better than the east. *Exercise* in a general way is desirable; but Cheyne thinks the dependent position as harmful to a tuberculous joint as it is to an ulcer; he would therefore, by preference, keep those with tubercular joints in the lower limb recumbent, have them wheeled out, and massaged generally to replace exercise. [It may be noted that, recently, chronic congestion of tuberculous knee-joints has been artificially produced by way of treatment, and good results have been reported, Bier, p. 214.]

(1, b) *Movement* of tubercular parts on one another and *pressure* against each other must be avoided. Cheyne would give rest, where possible, to any tubercular organ or part, *e.g.* to bladder by drainage, to part containing large glands by splint. *Excessive pressure* of parts upon each other is due to tonic spasm of muscles. Cheyne uses weight-extension to overcome this—moderate, but sufficient to tire out the muscles; this is the object to be attained, *not* separation of surfaces. As the muscles yield, the weight must be lessened, or it will *cause* pain, and do harm by dragging on inflamed ligaments. The value of double extension, from head and feet, in spinal caries—especially with paraplegia—is great, and laminectomy should not be done until it has failed to relieve. Spinal caries is best treated by two to three months' recumbency, with immobilisation and double extension; spasm will have ceased, and perhaps some ankylosis may have occurred. The patient should then be placed in a Phelps's box splint (Figs. 9 and 10).

In hip-disease with spasm (which indicates disease of bone, as opposed to purely synovial disease), Cheyne would begin with a few weeks of extension before applying a Thomas's splint, "so modified as to overcome the tendency to adduction, which the ordinary Thomas's does not do satisfactorily." [Many apply a Thomas's at once, and confine the patient to bed till pain and, with it, spasm have subsided.]

Counter-irritation with cautery at white heat has fallen into undeserved disuse; it is valuable in deep-seated tuberculosis, especially of bone. Pressure is of use only in synovial disease; massage is probably dangerous, unless in very stationary cases. Tuberculin, used for months together, may be beneficial where no radical treatment can be undertaken; Cheyne thinks its dangers have been much exaggerated. Iodoform does not kill bacteria,

but breaks up their products ; the best results are obtained by packing with the gauze. As to *operative treatment*, it is not necessary to operate in all cases ; decision must depend upon the

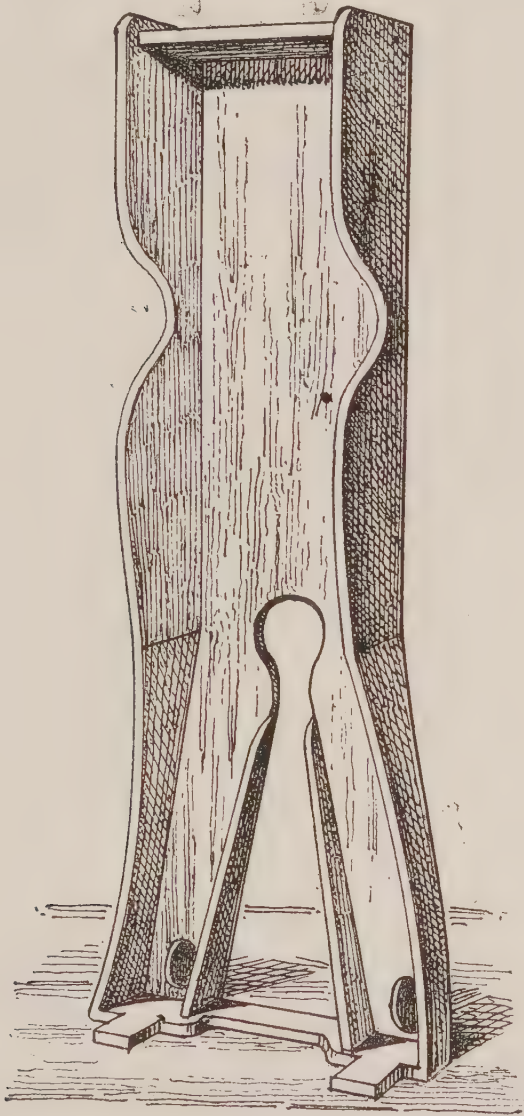


Fig. 9.—Phelps's Box Splint.

general and local condition of the patient. [Under "general" must be included the hygienic possibilities for the particular patient.] The danger of dissemination is slight after *thorough, cutting* operations, as opposed to scraping. Many cases die later of phthisis. In highly-predisposed subjects partial operations are more dangerous than complete. Operation is desirable in all cases of chronic abscess ; in early localised disease of joint or bone ;

in diffuse synovial disease, not arrested by treatment or complicated by a bony focus ; when a better functional result can be obtained by operation ; in certain cases of phthisis ; in adults



Fig. 10.—Child fixed in Phelps's Splint ; extension applied to head and feet.

and the poor more often than in children and the rich. *Expectant treatment* may be employed in other cases.

Complete removal of disease in joint cases may be effected in three ways: by arthrectomy, excision, and amputation. Partial arthrectomy comes between arthrotomy and arthrectomy, and acts partly by relieving tension, partly by removal of disease.

The choice of mode depends on age, general condition, and local condition. The remarks on local condition, as influencing treatment, are interesting. The points to be noted are—the presence of chronic suppuration or of septic sinuses, and whether the disease is localised or widespread. With regard to chronic suppuration, it is a serious complication, and some regard it as indicating radical treatment. Chronic abscess of joints (1) may start from a bony focus outside the capsule of the joint, requiring excision of the abscess and of the bony focus; (2) this abscess may be accompanied by synovial thickening, requiring removal and disinfection of more or less synovial membrane; (3) the abscess may start in the synovial membrane, and may or may not communicate with the joint, other patches being generally present in the synovial membrane; therefore arthrectomy in children, and excision or amputation in adults, is generally indicated; but in the hip and shoulder joints the abscess only may be treated [Cheyne therefore dissents from the view that suppuration requires excision of the hip]; (4) pus may occupy the synovial cavity; these joints require arthrectomy in young subjects, with search for bony foci, and their removal if found; in adults, excision of the synovial membrane, unless extensive bone-disease requires amputation; (5) pus may be in the joint and around it—excision or amputation is required; so much tissue needs removal, and the operation is so prolonged that amputation is generally best. In vigorous children less radical treatment may be tried; in the weakly, amputation is less dangerous than extensive arthrectomy.

Sepsis aids spread of tubercular disease, reduces the chance of recovery under expectant treatment, and necessitates more radical measures. It increases probability of dissemination, and renders possible the occurrence of septic wound diseases. When radical measures are undesirable, slit up sinuses, scrape and cut away their walls, remove the starting-point, disinfect with pure carbolic, and plug with iodoform gauze. This is much better than mere drainage. In joints one or other of the three radical measures is generally desirable.

Local character.—Occasionally localised masses are found in relation with a joint, connected with either bone or synovial membrane. If these masses are freely excised and parts disinfected, quick healing and perfect restoration of the joint is usual. For pedunculated tubercular growths of the synovial membrane, arthrectomy is proper.

Partial arthrectomy Cheyne is disappointed with; but occasionally it yields brilliant results, as when a sequestrum of the neck of the femur is found and removed.

Amputation should be preferred to a long operation in weakly patients, in cases of advancing phthisis or of waxy disease; in adults with much suppuration or many septic sinuses; in the young with extensive bone-disease; in bad recurrences after arthrectomy or excision.

Arthrectomy and *excision* are serious from shock; excision slightly the more dangerous. Recurrence is less likely after excision, but careful arthrectomy gives excellent results. As to mobility, the result varies in different joints; on the whole, Cheyne thinks that arthrectomy leaves the most serviceable joint. As to deformity, chiefly in the case of the knee: both operations very faulty. As regards shortening, arthrectomy has a great advantage.

Cheyne concludes that arthrectomy should be the radical operation up to fifteen or sixteen; after that, excision.

A new conservative method of treating tubercular joints.—**Bier** (*Ctblt. f. Ch.*, No. 32), at the German Congress, reported twenty cases treated by continuous passive hyperæmia, induced by an elastic band over wool above the joint, with firm bandaging up to the joint; the position of the band is frequently changed. Good results were constant, rapid, and striking.

König (*ibid.*) reviewed modern methods of treatment. Having abandoned early resection, about half his cases recover under rest, extension, and compression; about 30 per cent. recover under iodoform glycerin injections—treatment which he gives up if improvement does not occur from four or five injections; operation is necessary for the rest.

8. Malignant growths.

Nanu (*Rev. de Chir.*, May 10, 1892) reported to the French Congress upon the results of treating twenty-five cases of malignant growth (all verified microscopically) with injections of methyl violet, 2.50 to 12 grammes per diem of a 1 per cent. solution being used. No bad effects; ten cases cured, rest improved. When bones were involved, the knife had to be used. Others who have tried the remedy regard it as useless. **Ceroni** (*Rif. Med.*, Jan. 20, 1892) got no result in three cases (cancer mammæ, sarcoma pelvis, and sarcoma femoris); but in a case of multiple myxo-sarcomatous nodules of abdominal wall, some disappeared and others got smaller. On stopping injections the disease ran its course. **Butlin** (lectures at the College of Surgeons, Journals, June, 1892) dealt with the subject of chimney-sweep's cancer, which he believes to be as common among us now as ever. It is very rare elsewhere. Butlin believes the trouble to be due to chemical action upon the scrotum of some product of combustion

of hard or stone coal, and the practical immunity of other countries depends upon the more suitable working dress worn, and the greater cleanliness of the sweeps.

Sarcoma of the buttock: ligature of the internal iliac artery.—**F. Treves** (*Clin. Soc. Trans.*, 1892, p. 249): male, 16; pain in left hip two months, swelling six weeks; very lame, unable to walk without support; there was a tumour, the size of two fists, posteriorly between the iliac crest and the great trochanter; the thigh was flexed and adducted, and the patient kept it supported in this position; temperature 99° to 100° . An exploratory incision opened a cyst anteriorly; posteriorly it ran into solid, very vascular tissue, a bit of which was removed, and shown to be a spindle-celled sarcoma. Much relief followed the removal of tension, but in a month the patient was suffering as much as ever, the pain being very severe. The internal iliac artery was tied through a cut below the umbilicus, the pelvis being much raised, and the intestines pushed upwards. Pain went in ten days, appetite and sleep returned, flesh was gained rapidly. Strange to say, the tumour got steadily smaller, and the lad left hospital a month after operation. Nine weeks after the operation he was robust-looking, had just walked eight miles, and had regained his normal weight; a firm shrunken mass could be felt at site of tumour. After a time the mass increased again, and finally fungated; the lad kept about for ten months after the operation, and died fourteen months after it.

9. Muscles, tendons, and fasciæ.

Compound ganglion.—**Stanley Boyd** (*Trans. Clin. Soc.*, 1892, 291) recommended that in these cases an incision should be made from end to end of the swelling, and deepened through any covering fascia and annular ligament; that tendons, nerves, and all structures covered by the tubercular synovial membrane should be most carefully cleaned with the scalpel, deep infiltration sometimes necessitating excision of a piece of tendon; that 1·500 perchloride of mercury solution should be used to disinfect all parts, and that iodoform paste should next be spread over them; that all divided parts should be carefully sutured, and Carr's splint and a compressive dressing, leaving the digits free, applied; that active and passive movements should be carried out forthwith. Boyd claimed that the disease would thus be checked, and that at least as much movement as the digits were capable of at the time of operation would be preserved. In proof three cases were shown, in one of which (male, 52) the wrist also had been excised.

10. Bloodvessels.

Hæmorrhage after tonsillotomy.—**A. W. Lane** (*Clin. Soc. Trans.*, 1892, p. 227) reported a case: male, 21, tonsil excised rather freely, and patient lost half a pint of blood; he lost the same quantity three days later, and bleeding recurred the following evening (fifth day) and continued more or less till the seventh day, when he appeared to be dying—at least four pints having been lost. Common carotid tied under light anæsthesia, whilst three and a half pints of saline solution were injected into the basilic vein—the pulse changing from “154, and very feeble,” to “96, large and full.” Perfect recovery. **Hovell** recommends rubbing into the tonsil a very stiff paste of gallic acid one part, tannin three parts, and water, counter-pressure being made outside whilst a finger rubs in the paste. **Pollard** (*Brit. Med. Journal*, 1892, i. 1186) has twice been able to seize and tie the bleeding vessels after tonsillotomy.

Aneurysm.—**J. Croft** (*Med. Chir. Trans.*, 1892. A swelling developed in the neck of a young man, over the bifurcation of the common carotid; supposed to be glandular, secondary to a sore throat eight weeks before admission; it had enlarged quickly to size of pullet's egg during the last week, and was non-pulsatile. Two days later the swelling was larger, pulsatile, and caused pain and dysphagia. Exploration showed it to communicate with a large artery, and to arrest hæmorrhage it was necessary to tie the common and external carotid arteries and jugular vein. No pus was seen. Recovery was perfect. **Holmes** and **Barwell** thought an abscess had existed, into which the artery had opened, as **Liston** believed to have happened in his celebrated case; **Croft** objected that the patient would have died from the dose of pus. **W. W. Cheyne** (*Brit. Med. Journal*, 1892, i. 271) dissected out a ruptured aneurysm of superficial femoral in male, 29; it formed a centrally-pulsating swelling $8\frac{1}{2}$ by $6\frac{1}{4}$ inches. The artery was tied above the sac, sac opened, and clots turned out, vessel tied below it, and sac dissected out almost entire. Rapid healing without drainage; pulsation in post-tibial on 11th day. **W. Thorburn** (*ibid.*, 658) similarly treated an aneurysm of upper part of popliteal, which was both ruptured and suppurating. The patient, male, 27, a farrier, recovered well; the aneurysm was attributed to pressure of hoofs on the part. **Thorburn** records also an aneurysm of the dorsalis pedis (*ibid.*, 1891, ii. 1147): male, 41, baker; acute pain going downstairs nine weeks ago, followed within twenty-four hours by swelling all round ankle; this subsided in four weeks, leaving a fusiform pulsating swelling $1\frac{1}{4}$ by $\frac{1}{2}$ inch. No syphilis; hair white, and patient looked old;

arteries healthy, urine normal ; blind from double optic atrophy, both external recti paralysed, no knee-jerk. Dissected out, with good result. **Littlewood** (*ibid.*, 1892, i. 15) excised an arterial hæmatoma of the ulnar of six weeks' standing, and obtained rapid union.

11. Nerves.

A case of nerve-grafting.—**Damer Harrison** (*Clin. Soc. Trans.*, 1892, p. 166) gives short notes of nine recorded cases, and adds a tenth : male, 13 ; glass divided all long flexors except the ulnar ; they were sutured, but suppuration and sloughing ensued. On admission, after eleven weeks, right fingers were flexed, immovable, and insensitive in the area of the median. The hand was blue and cold, the skin glossy, the thumb muscles extremely atrophied. The matted tendons were dissected from each other, and from the surrounding tissue ; the ends of the median were freshened, and were then $2\frac{1}{2}$ inches apart, and $2\frac{1}{2}$ inches of the sciatic nerve of a kitten were fixed between them by a catgut stitch at each end ; the fingers were straightened, the wrist was flexed, and a splint applied. Union *per primam*. Sensibility began to return in forty-eight hours, and spread quickly ; but after eight months it was impaired over middle and absent over distal phalanges. Transference of sensation was noted from second to third digit. Glossiness, blueness, and coldness disappearing, thumb muscles developing ; no change occurred in them for five months—then considerable. Of the ten cases, three were wholly, six partially successful ; of the latter, four have made no step towards motor recovery, but one has not yet been long enough under observation, and of the remaining two, one is still improving. **P. Pick** (*Trans. Med. Soc.*, 1892) reported that in the case of a girl whose median had been severed two and a quarter years, 1 inch intervened between the ends even after stretching. He dissected up and turned down a strip of scar tissue from the upper end, and attached it to the lower. After six months sensibility returned, and regeneration of the thenar eminence occurred.

Trigeminal neuralgia.—Many important articles have appeared on this subject. **Horsley** (*Brit. Med. Journal*, 1891, ii. 1139 *et seq.*) discusses in detail the treatment of neuralgia affecting the various branches of the fifth. In opposition to many authorities, Horsley regards epileptiform neuralgia as of purely peripheral origin, the small subcutaneous branches, perhaps nerve-endings, and certainly nerve-trunks in bony canals being affected ; he expects complete relief to follow sufficiently high resection—unless reunion takes place, too short a bit having been excised ; or neuritis occurs in the stump, from sepsis ; or unless the nerve has

not been completely freed from a bony canal, in which neuritis is often most intense. The longer neuralgia has persisted, the higher must be the removal. As to treatment: try drugs thoroughly, especially quinine with arsenic or gelseminum; counter-irritation along the nerve-trunk; weak galvanic currents, gradually increased; these failing—and they generally fail in severe cases—operation is indicated. Neurectomy and nerve-avulsion are the only operations likely to relieve permanently.

On the first division Horsley has no special views. For neuralgia of the second division Horsley would operate, in the first instance, as follows:—To protect the eye he closes the lids by a horse-hair stitch; he then makes a cut along the lower orbital edge, and from this he cuts downwards $\frac{1}{2}$ to $\frac{3}{4}$ inch over the infra-orbital foramen. The first cut goes to the bone, and the periosteum is now stripped from the front of the jaw, the nerve exposed at exit, separated from vessels, a ligature being placed on each, and divided peripherally. Raise periosteum carefully from floor of orbit—it keeps fat out of the way. Chip open the infra-orbital canal with scissor-like bone forceps. The nerve and artery can now be separated from each other, and the nerve detached at the foramen rotundum. In certain cases the antrum is not opened; when it is, the inconvenience is slight; and if the “bottom of the wound” (antrum?) be filled with boracic powder drainage is not needed, and union by first intention will result. It is difficult to reconcile this with Horsley’s criticism of the prototype of the operation from the front (Carnochan’s and certain modifications of it), viz., that it possesses the “great drawback” of laying open the cavity of the antrum. Probably Horsley does not really regard this as much of a drawback after all. The operation is said to leave little scar or depression; but the chief objection to it, speaking without practical experience of it, would seem to be that in the space between the orbital floor and the raised periosteum it would be impossible to divide the nerve farther back than the spheno-maxillary fissure. In case of recurrence after this operation, Horsley would perform the modified Pancoast-Salzer operation described below.

Third division.—Horsley regards it as a *sine qua non* to success that the nerve shall be removed before entering the dental canal. He rejects the ordinary (Paravicini’s) operation—by incision on to the coronoid process, and separation of the int. pterygoid from the jaw—because the wound is, necessarily, septic, and may lead to cellulitis, necrosis of the jaw, or even septic infection. He performs the following operation:—A skin incision begins behind the middle of the upper edge of the zygoma, runs horizontally

back to the ear, turns sharply down in front of the tragus, angle of the jaw, and thence forwards to the facial artery; the flap is raised to the anterior edge of the masseter, the knife working superficially to the parotid and masseteric fasciæ, in which latter the facial nerves lie. The edge of the parotid and the lower branch of Stenson's duct should be clear, and care must be taken not to cut any small ducts from the lower lobules running up to Stenson's duct, just within the edge of the parotid. Next divide the masseteric fascia horizontally between the duct and infra-orbital branch of facial. Now raise the fascia and parotid and nerve twigs all round this cut, with handle of knife, and retract edges with retractors (concave towards the wound), till it is 3 cm. across. Divide the posterior two-thirds of the masseter with scissors, arresting bleeding by pressure and hot lotion. Peel off the periosteum of jaw and the masseter till the sigmoid notch is clear. (An electric light, worn on forehead, is essential to success.) The notch is to be extended down to the dental foramen; mark out the necessary "U" with holes drilled just through the bone, and the piece is nipped out, after a centimetre disc has been taken out opposite to dental foramen. The inf. dental nerve is found in the trephine hole or just posterior to it, is tied low down, and divided just above the canal, and its upper part separated as far up beneath the retracted ext. pterygoid as possible (1 cm. from foramen ovale), and divided here. The lingual is next sought. If it has not been seen, it lies rather in front of and 1 cm. deeper than the dental, at the level of the dental foramen. A large piece is to be cut out.

When this operation, or that from the front on the second division of the fifth, fails, Horsley performs the following modified Pancoast-Salzer operation, which enables him even to open the skull, and remove the intracranial portion of the second and third divisions.

A cut is carried from the root of the pinna across the middle of the temporal muscle, down temporal ridge, to just below middle of malar, and the flap turned down to below zygoma. The deep temporal fascia is divided 1 cm. above the zygoma, and turned up and down; the malar bone is sawn through with an Adams's saw pushed in beneath separated periosteum parallel to outer margin of orbit, and the zygoma is divided just in front of jaw; the zygoma and masseter are pushed down with Stenson's duct and facial branches. The coronoid process is cleared, the top cut off with bone forceps, and removed together with the lower portion of temporal muscle (which would atrophy after section of its nerves). Oozing, is generally free, but easily checked by hot

irrigation and firm sponge-pressure. The ext. pterygoid is separated till the foramen ovale and third division are clear. Now the nerve may be divided or pulled out; or with a suitable trephine (Hawksley) the skull may be trephined, and the bone between the foramen ovale and foramen rotundum removed, the second and third divisions cut intracranially, and a longer length removed. After thorough disinfection the wound is closed and a tube brought out from the bottom, in front of the pinna. Two cases healed *per primam*—in one there was some necrosis, which Horsley at first attributed to the necessarily rough handling, but now regards as septic.

Horsley meditated the removal of the Gasserian ganglion some years ago in inveterate recurrent cases; but examination showed him that while it was possible to remove the lower half of the ganglion, raising of the upper half from its bed invariably tore the cavernous sinus. He therefore believes that W. Rose removed only a part of the ganglion. Horsley, however, found it possible to divide the fifth above the ganglion. He turns down a temporal flap, including the whole temporal muscle, the posterior half of which is best removed. The whole of the squamous portion is next removed with trephine and forceps, the dura opened freely, a broad copper retractor slipped beneath the temporo-sphenoidal lobe and slowly raised. An electric light illuminates the base, the upper edge of the petrous is followed in, the brain raised till the tent can be seen at the apex of the bone. A puncture is made into the canal containing the fifth trunk and, when found, the canal is to be slit up; the nerve is then divided, or drawn out from the pons by traction with a blunt hook. Horsley performed this operation upon a woman who was much exhausted, and she died in seven hours of shock. Experiments on animals show clearly that mere exposure and section of the nerve are not dangerous to life.

Horsley publishes a table of nineteen cases and thirty operations on the fifth nerve. (Three or four operations were sometimes necessary before complete relief was obtained.)

Walsham (*Brit. Med. Journal*, 1891, ii. 1308) protests against the statement that Paravicini's operation has fallen into desuetude. Walsham has frequently practised it, and on one occasion only have cellulitis and necrosis resulted. Apparently he stretches the nerves, repeating the operation for recurrence of pain. He says the incision must be clean and free, the parts disturbed as little as possible, and the periosteum left on the jaw.

Wm. Rose (Lettsomian Lectures, in Journals, Jan. 1892, and brochure) deals with the whole subject. Generally, he is in absolute

accord with Horsley ; but whilst admitting that complete removal of the Gasserian ganglion is difficult, if not impossible, he thinks sufficient may be removed to afford permanent relief, with less risk than Horsley's intracranial section above the ganglion involves. Rose's operation begins like Horsley's modified Pancoast-Salzer operation ; but when the foramen ovale is bared, a small long-handled trephine (Hawksley) is applied to the great wing just external and anterior to it, and a disc removed. In spite of all care the dura may be wounded externally. The opening is enlarged, and the foramen ovale thrown into it, with bone forceps, chisel, and mallet, the bulging dura being pushed up and protected by a spatula. The Eustachian tube is in danger in this procedure, and if wounded may lead to sepsis. Finally, the dura is well pushed up, the light thrown into the depths of the wound, and the posterior part of the ganglion picked and scraped away with sharp-pointed forceps, blunt and cutting hooks (Hawksley), or a sharp spoon. Bleeding is carefully arrested, all parts, including the zygoma, sutured in position, and the skin wound accurately closed without drainage. The pressure of a purified sponge inserted between the cyanide gauze of the dressing is useful in preventing oozing. Both eyes should be kept bandaged for a week, and that on the side operated on for three or four weeks.

Of six patients thus treated, Rose lost one—he fears, from sepsis. As to immunity from pain, the cases are all too recent to enable one to say anything ; a note added as the monograph passed through the press makes us fear that this operation also will fail to give permanent relief.

Krause (*Ctblt. f. Ch.*, No. 32, 1892) reported an intracranial neurectomy of 2 V. in female, 47, after failure of resection, first up to the spheno-maxillary fissure, and then up to the foramen rotundum. Krause made a uterus-shaped incision down to bone, marking out a flap having its base ($3\frac{1}{4}$ cm.) at the zygoma, $6\frac{1}{2}$ cm. high, and $5\frac{1}{4}$ cm. broad ; pushed aside the periosteum, and chiselled through the skull along the line of the incision ; then broke through the base of the bone flap with an elevator used as a lever, and raised it and the soft parts together. (*Vide* "Year-Book," 1892, p. 208.) Krause then separated the dura with finger and blunt raspatory till he reached the foramen rotundum, where he seized the nerve and excised 0.5 cm. (!), which was thickened and too red. This was done at a second operation, as general oozing from dura and bone obscured the view ; the wound was therefore plugged with iodoform gauze for five days. After the resection the flap was laid down with a small gauze drain posteriorly ; good healing ; satisfactory result (very few months had elapsed).

Krause states that after double ligature and division of the meningeal vessels at the foramen spinosum, the 3 V or Gasserian ganglion can be reached. [Speaking without having tried the operation, it is difficult to conceive that such an operation, leaving the zygoma *in situ*, would give the necessary space.]

12. Brain.

Craniectomy.—R. S. Miller (*Brit. Med. Jour.*, 1892, ii., 176).

Male, 8 months, blind from double optic neuritis and atrophy, with nystagmus and squint; microcephalic; almost constant general tonic spasm of limb and back muscles. Fontanelles closed "none at birth" (mother). Chloroform given. Pulse, ordinarily irregular, soon ceased at wrist; restored by hot sponge to head and inflation of chest with oxygen. This had to be repeated once or twice, but pulse steadily improved as the bone was cut through. The bony excision was to the left of the sagittal suture, more than 3 in. long and $\frac{1}{2}$ in. wide; a short arm ran outwards at each end; the periosteum was removed with the bone. Uninterrupted recovery. Spasm of limbs diminished from operation; nystagmus and squint went, sight improved, and a hand was evidently noticed in a good light. After five weeks the circumference of head had increased $\frac{3}{8}$ in., and the frontal eminences were nearly $1\frac{1}{2}$ in. from centre to centre; intelligence and sight were obviously improving, and he shortly became able to stand.

Compression from hæmorrhage.—Some interesting cases have been recorded. Bland Sutton (*Clin. Soc. Trans.*, 1892, p. 102) stated that a drunken man fell and struck his head on the pavement; admitted insensible; recovered consciousness after a few hours, and soon became again unconscious; then right side became paralysed. A slight scalp wound lay behind left parietal eminence. Trephined on left side, about middle of temporal fossa, seventeen hours after accident. Sub-cranial clot, one and a half inch thick, exposed and scooped out. A search-light showed a fracture running across the tympanum; and after free removal of bone, the torn posterior branch of the meningeal was caught in pressure-forceps, it and the dura having been torn over the fracture in the petrous. Forceps left on sixteen hours. Satisfactory healing; cerebro-spinal fluid oozed from ear for some days; answered questions and moved right limbs freely on third day; said to be "quite conscious and quiet" on eleventh. C. Symonds had operated thrice, with two recoveries; compression of the common carotid was sometimes necessary for three or four hours after trephining. Godlee had seen several cases, usually fatal—he thought, because left so long that brain lost power of expansion. H. Openshaw (*Brit. Med. Jour.*, 1892, i. 275 and 607) operated twice for subdural hæmorrhage. M.,

forty-two, fell and wounded left side of head: severe headache three days, delirium on fourth day; fits, starting in left fingers, and increasing insensibility on fifth day, led to diagnosis of hæmorrhage by contrecoup. Trephined on right side—no fracture, dura bulged, was incised, and 5 oz. of clot and serum let out; bone disc replaced; rapid recovery. The second case was less successful. M., sixty, fell and struck left side of head; he walked into hospital; left paralysis after some hours, with convulsive twitchings of right limbs; trephined twenty-six hours after admission, but soon sank; large sub-dural clot found in right middle fossa.

Pachymeningitis hæmorrhagica interna.—Stanley Boyd (*Clin. Soc. Trans.*, 1892, 157) recorded a case, apparently of this nature, in which he had trephined successfully. M., forty-one, fell from a horse; considerable bruising of left side of head, but only short unconsciousness. Rested three weeks, then returned to business, though suffering from headache and lack of energy. Headache increased, and paresis of right arm appeared seven weeks after supposed recovery and ten from accident; paresis deepened into paralysis, and spread to leg and face, becoming absolute in ten days and being accompanied by drowsiness and, finally, coma. All symptoms increased rapidly in the last day or two, and tenderness over the left Rolandic area appeared, and the temperature rose 99° to 102° . Trephining over middle of left Rolandic fissure, evidence of a horizontal fissure of the parietal being found here; dura bulged and was opened, exposing a cystic clot, which was incised and 4 oz. of dark-red clear fluid let out; tube placed in cavity and brought out through dural and skin flaps, which were sewn into position. Rapid healing; tube removed on fourteenth day. Consciousness not recovered for some hours; was delirious for eleven days after (delirium tremens, probably). Perfect recovery of all faculties and functions.

General paralysis.—Batty Tuke (*Brit. Med. Journal*, 1892, i. 105) states that the case given in "Year-Book," 1892 (p. 229), died fourteen days after report, from influenza. *Post-mortem*: the usual signs of general paralysis were well marked. He gives another case: M., forty, symptoms one year; showed every indication of a rapidly fatal case. Trephined in both parietal regions; the dura did not bulge abnormally. On opening it, little fluid escaped, but the deeply-injected and œdematous pia bulged out, and a little fluid escaped on incising it. A tube was inserted on each side; wounds healed on twelfth day; free serous oozing at first. The pupils became larger and equal, the mind improved, excitement went, and he took food well; the tongue was

protruded more easily, was less tremulous, and no longer deflected to left; speech more distinct. About ninth day mind clouded again and pupils contracted, otherwise relief continued. Death three months after operation after a congestive attack. Tuke says so long as drainage can be kept up, there is relief; when the wound heals, symptoms return. He suggests laminectomy of the second or third lumbar vertebra, and opening of the sub-arachnoid space: he would adopt Dr. J. Duncan's suggestion to leave in here a permanent horsehair drain.

J. Macpherson and D. Wallace (*Brit. Med. Journal*, 1892, ii. 167) give the experience of the Stirling Asylum. They regard the affection as primarily inflammatory, and degeneration of nervous tissue as secondary. The idea of operating should be to relieve the inflammation by removal of tension, not to relieve the brain from the pressure of compensatory fluid.

Five cases were treated by trephining on one or both sides at one operation, over the oro-lingual centres—chosen because the tongue and lip muscles are the earliest to suffer; periosteum and bone over an area 2 inches by 1 inch were cut out; the dura did not bulge abnormally, but on puncturing it a quantity of clear fluid escaped, spouting up one inch at first. The dura was cut away freely in four cases, incised and drained with horsehair in one, and the skin-flap laid down over the opening; no drainage except in fifth. The pia arachnoid was too vascular in every case, and on incising it fluid escaped in small quantity; perhaps because intra-cranial pressure was diminished. Pulsation became marked in all cases; and in No. 3 the effect of respiration was excessive, producing a sinking-in of $\frac{3}{4}$ inch. Surgically, all cases did well, uniting *per primam*; no patient seemed to suffer in the least. In all but the first case improvement, lasting one to three weeks, followed on the operation; it was permanent in no case. Deterioration always occurred with firm cicatrisation. In one case, which has since died, there was no adhesion between the brain and the under surface of the flap—upsetting Cripps's theory that a lymphatic connection between the brain membranes and scalp might be established. The disease was well established in all the cases; if surgery can help, it must be in the earlier, at present hardly recognisable, stages.

13. Spine and spinal cord.

Operative treatment in compression of cord through displacement of vertebral bodies.—Urban (*Ctblt. f. Ch.*, No. 32, 1892) reported to the German Congress that he had adapted the "temporary resection" plan to the spine. A flap of soft parts and bones is turned up in the lumbar region, down in the dorsal, the

neural arches being cut as far out as possible; the cord is drawn aside with blunt hooks and the projecting body chiselled off. Then the flap is fixed down by stitches. Of four cases, two for fracture lived, and two for disease died. The first, six months after operation, is going about in a support on wheels; the second, lately operated on, recovered sensation on second day, both sensation and motion having been absent nine and a half months. Free access is given by the operation, and no part is unnecessarily removed.

Fibro-sarcoma of laminae, pressure on cord: rhachiotomy.—**N. Davies-Colley** (*Clin. Soc. Trans.*, 1892, p. 163): F., twenty-three; fell 3 ft. seven years ago, striking back of head and spine; spinal caries resulted, and she recovered in a year. Pain in chest and back returned two months ago, with weakness of legs, rapidly increasing to paralysis, with some anæsthesia, and some incontinence of urine and fæces when upright. A large, rounded, hard boss corresponded to fourth to sixth dorsal spines, and occupied also the right vertebral groove. Rest in bed caused no improvement (seventeen days); then exploratory incision revealed a lobulated growth (4 by 2 in.) in right groove, and overlapping spines, easily separated from muscles, and attached to right laminae of fifth and sixth vertebræ. The laminae here were soft, and easily cut with forceps: they and the spines were removed, leaving an opening 1 by $\frac{3}{4}$ inch into canal—the dura being healthy, but the cord flattened and soft. A mass between two transverse processes was finally dissected out. Deep sutures, drainage; rapid healing. Nerve symptoms improved at once; could walk alone in six weeks. Seven months after operation she had been at work six weeks, and had no deformity of back.

Extra-dural growth—tubercular (?).—**W. Jones** (*New York Med. Rec.*, March 12, 1892) operated on F., thirty-one, who had had pain for seven years, angular curvature of lower dorsal spine three years, and almost complete paralysis and anæsthesia from waist downwards for six months. Sixth to ninth laminae removed; a tumour, thought to be tubercular, $1\frac{1}{2}$ in. wide, and extending from fifth to eighth vertebræ, was removed from surface of dura, to which it was adherent above. Wound healed well. Sensation began to return on ninth day, was everywhere present on fifty-fourth day, and said to be perfect after seven months, when she could walk with crutches.

Echinococcus in spinal canal.—**W. B. Ransom and A. R. Anderson** (*Brit. Med. Journal*, 1891, ii. 1144): M., forty-two; no history of syphilis. Severe constant pain in lumbar spine, worse at night, occasionally shooting to feet, lasting four months; then

only occasional and moderate for ten months, so that patient could work ; then it recurred as bad as ever, and motor paralysis, loss of sexual power, and dysuria quickly appeared ; slight tenderness of lumbo-dorsal spine, and dysæsthesia below ilio-hypogastrics. Under mercuric iodide, potassium iodide having been previously pushed, all symptoms increased and a sloughing bed-sore appeared on each buttock. Anderson cut down on spine, intending to make twelfth dorsal the centre, but mistook first lumbar for it, patient being fat ; he actually removed eleventh and twelfth dorsal and first and second lumbar laminae, and found nothing intra- or extra-dural ; dura left open, wound closed by deep and superficial stitches. Death on third, probably from septic poisoning from bed-sores. *Post-mortem*.—Two hydatid cysts, size of walnuts, in right erector spinæ ; another, caseating, beneath tenth laminae, almost visible from wound. Cord flattened, almost fluid for half an inch, and very soft to end.

14. Bones and joints.

Detachment of the internal epicondyle of the humerus.—J. Hutchinson, Jun. (*Brit. Med. Journal*, 1892, i. p. 111), thinks that in many cases the epicondyle is torn off by force along the ulna and the internal lateral ligament. It frequently accompanies dislocation of the forearm bones ; in other cases it is knocked off by direct violence ; in only a few is muscular action responsible. The great majority of cases occur before eighteen, when the epiphysis unites. The fragment is displaced down and back, and rarely, if ever, unites by bone. In some cases—frequently in the experience of some surgeons—grave impairment of the functions of the joint has followed this injury. Sometimes, too, crops of vesicles appear along the course of the ulnar nerve and the muscles supplied by it atrophy. Hutchinson gives a case and adduces arguments to show that the early rigidity of the muscles and fixation of the joint are reflex, and due to irritation by the fragment of the ulnar nerve. He recommends passive motion within three weeks, continued till complete recovery. In cases of atrophy or of trophic lesions in area of ulnar, he would excise the epicondyle. [The difficulty in referring these cases of impaired movement to fracture of the epicondyle is that of eliminating other injury of the lower joint-end. In cases threatening to end badly, many nowadays would probably prefer to cut down early on the fragment and pin it in position.] A. H. Frere (*ibid.*, p. 195) advocates treating these fractures with the elbow extended and hand prone.

Permanent subcutaneous suture of patella for recent simple fracture.—A. E. Barker (*Brit. Med. Journal*, 1892, i. p. 425). The

region of the joint is rendered aseptic immediately, and the operation is done as soon as possible, that blood effused may be fluid. The lower fragment is steadied, and a narrow knife is thrust edge upwards into the joint in midline, just below patella, cutting on bone as it is withdrawn, and skin wound $\frac{2}{3}$ inch long is made. Through this wound a stout-handled pedicle needle is passed behind both fragments and through the quadriceps tendon in midline as close to bone as possible. The upper fragment is now pushed down and steadied; the skin is drawn up, the needle-point made prominent, cut upon, and the knife caused to enter the joint along it; it is withdrawn, cutting downwards on to the bone and again inflicting a $\frac{2}{3}$ -inch wound. The needle is threaded with stout aseptic silk or wire, and withdrawn. It is then passed from lower wound to upper wound, just in front of the patella, threaded with the other end of the suture, and withdrawn. The fragments now lie in a noose, the ends of which hang out below; they are firmly knotted or twisted, and cut short—after as much blood as possible has been squeezed out of the joint, and after the two fragments have been pressed and rubbed together so as to destroy any intervening material. Apply small antiseptic pads to the wounds, and wrap joint in salicylic wool; a back-splint is worn for eight or ten days, then active movement is permitted. Four cases given: all patients able to walk well in five weeks, and line of union imperceptible.

A. H. Butcher (*ibid.*, p. 904) suggests, from dead-house experience, a suture round the fragments, passing through the quadriceps tendon and ligamentum patellæ, the knot to be on inner side.

D. W. Aitken (*ibid.*, 1892, ii. p. 177) objects to the silk or wire over the cartilage, and suggests the use of a long, hollow drill to bore through the fragments from below up, the knee being flexed and the fragments held closely together. A wire is then pushed along the tube, from a hole near the base of the drill, out through a hole near the point; it is seized, held, and the drill withdrawn. The drill is now passed through the same skin-holes, superficial to the patella, and the upper end of the wire is pushed along the channel once more. On withdrawing the drill, both ends of the wire lie below the patella, and are easily knotted, the knot being allowed to sink. [Obviously this method, if practicable in actual cases of fracture, is a good deal more troublesome than Barker's, and requires at least equal cleanliness for success.] Aitken advocates the use of his drill for subcutaneous suture of dislocations and fractures of the clavicle (*ibid.*, p. 810).

Schneider (*Ctblt. f. Ch.*, 1892, No. 32) showed at the German Congress six cases of bone suture. Three were fractured patellæ,

with complete movement, and two got up on third day. One was a comminuted fracture into the ankle of the lower end of the tibia. He fixed transversely fractured fragments by longitudinal stitches, and fixed these again by two loops of wire round the bone; upon twenty-first day, perfect recovery as to movement and position; but one wire loop was removed through sinus that persisted six months. Two were cases of suture of lower epiphysis of radius—in one through anterior and posterior longitudinal cuts, in the other after turning down a flap. Perfect result in both as to healing and movements of finger and wrist. One, a man of fifty-five, went to work on nineteenth day; the other, a boy of twelve, wrote his name on fifth day, and knocked in nails with hammer on fourteenth day. Von Bergmann opposed suture of subcutaneous fractures; Trendelenburg supported it, because of rapid restoration of function of joint.

Ununited fracture.—Ménard (*Rev. de Chir.*, May 10, 1892) treated a fracture of the leg-bones, ununited after five months, by injecting 1.25 gm. of a 10 per cent solution of chloride of zinc about the fracture: much pain and swelling, which went during a fortnight's immobilisation. The patient was able to walk in a month.

Recurring dislocation of the lower jaw: a method of treatment by operation.—F. Marsh (*Brit. Med. Journal*, 1892, i. p. 907). In these cases the capsule is stretched rather than torn, and the part which suffers most is that above the fibro-cartilage, and particularly the external lateral ligament. Until these are stretched the fibro-cartilage and jaw cannot move forward over the eminentia articularis. Marsh's operation aims at shortening the upper part of the capsule without interfering with the movement of the jaw. A woman of twenty-three, whilst gaping, dislocated her jaw on both sides a fortnight after delivery; frequent recurrence since—sometimes several times a-day. The left joint was exposed by a 1-inch incision downwards from zygoma, and $\frac{1}{2}$ inch in front of auricle; capsule opened, and the fibro-cartilage found very loosely attached; one fine wire stitch passed through cartilage and the periosteal attachment of the capsule, and another placed to pucker up and shorten external lateral ligament. Union *per primam*. Restraining bandage worn two months. After this, dislocation of the right joint was frequent, but left remained in place. The right joint was operated on four months after left, but only one silk stitch was used, from bone to cartilage in the line of the external lateral ligament. The result was perfect, and had lasted eighteen months. There was no limitation of movement.

Excision of head of humerus for frequently-recurring sub-

coracoid dislocation of two and a half years' standing.—**Southam** (*Brit. Med. Journal*, 1892, i. p. 1193). The anterior third of glenoid fossa was absent; there was no trace of disease, therefore the absent part was probably broken off in the first dislocation and displaced or absorbed. After twelve months, movement was good, and displacement had not recurred, owing, Southam thinks, to fibrous union between shaft and socket. In a similar case **Dubreuil** (*Sem. Méd.*, Feb. 27, 1892) made six injections in twelve days of two drops of a 10 per cent. solution of chloride of zinc at various points about the capsule; rigid antisepsis; little pain, no reaction; apparent cure.

Old irreducible dislocations of shoulder.—**A. Pearce Gould** (*Med. Cir.*, Feb. 22, 1892) showed a case of fourteen months' standing. An anterior incision was made, and, with much difficulty, due partly to filling up of glenoid cavity and partly to general shortening of parts round joint, he turned the head back into socket. The man could perform all the usual movements of the shoulder, but the hand was still damaged owing to long pressure on ulnar nerve.

W. W. Cheyne showed a case of four months' standing, in which he, like Gould, had had to divide muscles like the coracobrachialis and pectoralis major freely. Result less satisfactory than in Gould's case; but the man could work as a French polisher.

Operative treatment of chronic traumatic or mechanical arthritis.—**W. A. Lane** (*Brit. Med. Journal*, 1892, i. 1193). Female, 28, strained wrist lifting furniture eight years ago: increasing swelling, pain, weakness of lower radio-ulnar joint and final incapacity of hand. Lane excised lower end of ulna subperiosteally: the synovial membrane was thick and villous, and was removed; the triangular fibro-cartilage was gone; the articular surfaces of ulna, radius, and pyramidal were eburnated. Gradual but complete recovery under passive pronation and supination.

Schüller, in the German Congress (*Cblt. f. Ch.*, No. 32, 1892), recommends injection of a 2 per cent. solution of chloride of zinc into rheumatoid joints with thickened synovial membrane: it causes a good deal of pain and swelling, but later, the papillæ shrink, and the capsule is left thin and soft, and metacarpo-phalangeal joints regain their normal appearance. In more advanced cases arthrectomy, with removal of the whole synovial membrane and preservation of the ligaments, should be done; suture without drainage, and compress firmly: then massage, faradisation, passive movement, baths, and douching. Pain is abolished and substantial restoration of function occurs. Schüller had thus treated four

knees and one elbow. Operation should precede marked muscular atrophy.

15. Thyroid body : myxœdema.

Many cases of marked benefit from injections of the thyroid extract, introduced by G. R. Murray, occur in the journals. Murray introduced the subject for discussion at the British Medical Association meeting (*Brit. Med. Journal*, 1892, ii. 449). For his method, which has generally been followed, see "Year-Book," 1892, p. 234. From the discussion the following points may be gleaned :—

The extract may be prepared from the thyroid of many animals—sheep (Murray), calf and cow (Claye Shaw), pig (E. C. Carter). The great majority of cases, even of many years' standing, react to this treatment and quickly lose their symptoms. Symptoms of insanity may disappear simultaneously (Claye Shaw) or abate (E. C. Carter, *ibid.*, 1892, i. 805). The improvement may last a considerable time—two months (Claye Shaw)—without fresh injection. The injection should be made of fresh extract, with every care as to asepsis; slowly and not into a vein (disconnect syringe after introduction of needle, and see if blood issues); stop injecting if flushing is noticed. Murray has seen flushing, pain, and loss of consciousness occur a few seconds after injection—thinks it probably was made into a vein. Hearn had seen a patient become almost blue-black, with general tremors and unconsciousness (fifteen minutes); she was quite well a week later. The improvement in symptoms and sense of well-being may induce people who have for long taken no exercise suddenly to make some, for them, severe effort: sudden death from cardiac failure has resulted in at least two cases. Patients, especially with weak hearts, should be earnestly warned upon this point (Murray). The injections are of no service in exophthalmic goitre (W. B. Ransom).

16. The lungs and pleuræ.

Hydatid of lung ; aspiration ; death.—H. Mackenzie (*Clin. Soc. Trans.*, 1892, 215, and *Lancet*, 1892, i. 871). Male, 26; short history of cough, dyspnœa, pain in lower part of right chest, night sweats, and loss of flesh; the tumour occupied nearly upper three-fourths of right chest. A pint of hydatid fluid aspirated; patient turned faint, but rallied, and went on well for six hours, when he coughed up a little thin, blood-stained fluid; then urgent dyspnœa, pallor, lividity, cold sweats, and death in two hours. *Post-mortem*: a large bronchus opened into cavity formed by fibrous capsule of cyst. Of five cases seen in two years, two died during aspiration, one nearly died, one was aspirated and recovery followed excision

of a rib, and one, suppurating, died after excision of a rib. Bristowe referred to case quoted in "Year-Book," 1892, p. 237. According to Dr. D. Thomas, the mortality of cases left alone is 54 per cent.; of those aspirated, 27 per cent.; of those treated by resection of one or more ribs and removal of the cysts, 16 per cent. Experience further showed that there is more danger in tapping a living hydatid than a dead or suppurating one, for in the former the lung tissue is simply compressed, and extravasated fluid enters bronchial tubes freely. Therefore Bristowe thinks a rib should be resected and a free opening made into chest before removal of the fluid is attempted. Maunsell had had a large experience of hydatid disease in Australia. In exploring or aspirating the lung a very fine needle should be used, otherwise the thoracic cavity may be swamped by leakage along the track. A small cyst may be cured by aspiration, but a large one, especially one containing daughter cysts, or a suppurating cyst, or one which had refilled after aspiration, must be removed. Maunsell had thus treated fifteen without a fatal result.

W. M. Ord and H. B. Robinson (*Clin. Soc. Trans.*, 1892, 123) record a case of suppurating hydatid cyst of right lower lobe in male, 18, who had had pleurisy for two weeks, four months before admission, and then recovered completely; five weeks ago cough came on, followed after two weeks by sudden pain in right side and expectoration of "half a pailful of opaque yellowish-white fluid, which poured from the mouth and nose." The cavity became septic, and hectic fever with its accompaniments set in. Under ether-spray the sixth rib was excised ($1\frac{1}{2}$ inches) between its angle and the scapula, and cutting through its periosteum and adherent lung, through firm fibrous tissue and without bleeding, a cavity was reached $\frac{1}{4}$ inch from the rib, and half a pint of stinking pus and a single hydatid cyst (5 inches across) were removed. The boy got profuse diarrhoea, temperature continued high, and he died on the 13th. *Post-mortem*: empyema round right apex; acute broncho-pneumonia of right upper and left lower lobe; acute purulent pericarditis and a small abscess in one kidney; two hydatid cysts of liver.

Pulmonary abscess and gangrene: pneumotomy.—Several successful cases are recorded. Huber (*Arch. of Ped.*, May, 1892). Male, 4 years, ill five weeks with pleuro-pneumonia; had physical signs of right apical empyema, or possibly pulmonary abscess. Pus found by needle: pleura opened through fourth space—no pus in pleura, but found in lung after several punctures; track dilated, cavity washed out and drained for six weeks, but sinus

remained open ten months. Huber regretted having withdrawn the needle which first found pus.

C. Périer (*Sem. Méd.*, March 16, 1892) reported a case of gangrene of left apex in male, 58; chest opened in second space, pleura and lung cut into to depth of 2 c.m., and cavity of about 60 c.c. capacity opened, carefully cleansed with cotton wool steeped in chloral solution (1 to 100) and touched with camphorated naphthol: drained for twenty days; completely healed three weeks later. Five weeks after this health perfect, and no symptoms or signs of pulmonary disease existed.

Delagenière (*ibid.*, April 30, 1892) reports a case of left supra-diaphragmatic abscess, bounded above by gangrenous lower lobe; opened by a 12 to 15 c.m. incision after resection of seventh to ninth ribs from angles to cartilages. All gangrenous tissue was cut away with scissors, and a cavity the size of a man's fist left; careful disinfection and drainage; recovery, though condition was almost hopeless before operation.

17. Tongue.

Address on the surgery of the tongue.—J. Hutchinson (*Brit. Med. Journal*, 1891, ii. 1189). The main object of the paper was to advocate the removal of epitheliomata by the wire *écraseur*: it is slow ($\frac{1}{2}$ hour), rather clumsy, and leaves a sloughy wound late in granulating—but it is safe. Hutchinson cannot remember having lost a case in private. There is little danger of breaking the wire, if you go slowly. The linguals generally bleed, after $\frac{1}{2}$ hour: it is well to make them do so by rubbing and to tie them. Get patient up next day or as soon as possible, freely and frequently wash mouth out with Sp. vini rect. ʒi in a tumbler of cold or warm water, as patient likes. Feed by tube to back of mouth; in bad cases by catheter through nose, which may be left in a week. Removal of whole tongue is very rarely necessary. Hutchinson can remember only four cases of local recurrence after partial removal. The real risk is of gland affection, and this begins from the day when the sore becomes suspicious; probability of recurrence in glands, soon or after a long period, is great; operation then is not hopeful. Hutchinson mentions two or three cases of non-recurrence for three to five years after removal of a gland; he does not seem to indulge in the very free removal of glands often practised nowadays, nor does he seem to deal with apparently healthy glands, in relation with a cancer. W. R. Williams (*ibid.*, 1892, i. 15) gives the statistics of fifty-four Middlesex Hospital cases, to show what very different results the *écraseur* has given in other hands, and in hospital [and this, we believe, is the common experience]. Of twelve cases removed

by the *écraseur*, five died ; one case only was severe and recovered. Of sixteen cases excised with a knife, two died ; and of twenty four done with scissors, two died.

18. Peritonitis.

On the factors which produce septic peritonitis.—Max Walthard (*Brit. Med. Journal*, 1892). In one series of experiments a certain area of rabbit's peritoneum was exposed for fifteen minutes, and then inoculated with pyogenic organisms. In another series everything was the same, but the exposed area was kept moist and warm (40°C.). Peritonitis resulted in the first, not in the second series. Drying is therefore regarded as a most important factor in peritonitis, and free irrigation with warm sterilised saline is advised. It is said that in operations so conducted no adhesions form between injured and normal surfaces, nor between two injured surfaces free to move ; but fixation by opium or ligature leads to adhesion of such surfaces. Therefore opium should not be given after laparotomies if adhesions are undesirable.

Surgical treatment of purulent peritonitis.—Körte (*Ctblt. f. Ch.* No. 32, 1892) reported to the German Congress the results of nineteen operations during the last two years—cases of gangrene of gut following hernia and internal strangulation, and tubercular peritonitis being excluded. The objects of operation are—(1) evacuation of pus ; (2) diminution of pressure in abdomen ; (3) sometimes closure of a perforation ; (4) drainage.

The ages of the nineteen patients varied from 2½ years to 71. Six were cured—ages of four 18 to 31, of two 49 and 56.

In twelve cases spreading fibrinous and purulent general peritonitis was found—six recovered. In seven there was purulent peritonitis without adhesion—all died.

The cause in seventeen cases was intestinal perforation ; in two the reduction of herniæ.

Sixteen were operated upon within four days, and six recovered ; three after four days, and all died.

Chief points in operating are speed and simplicity. Evacuate pus ; irrigate where adhesions exist, mop out when there are none. All manipulations in an inflamed peritoneal cavity further collapse ; therefore spare adhesions, and do not seek for perforation, but deal with it if easily reached. Drainage by tube is necessary.

Convalescence is always slow ; several operations may be required in some cases ; intestinal fistulæ are common—one healed spontaneously. There is much danger of abdominal hernia after.

Deaths : one during operation, three shortly after, six within twenty-four hours, one on second and one on third day. After the third day only one died, on the fifteenth. *Post-mortem*.—Extension of peritonitis in all.

Two cases of perforating ulcer of the duodenum.—**C. B. Lockwood** (*Trans. Clin. Soc.*, Nov. 13, 1891). Male, 28, and male, 41. All signs of acute intestinal obstruction; laparotomy, septic peritonitis; irrigation, drainage—death in a few hours. Ulcer on front of duodenum in one case, on back in the other.

To show that the results of abdominal section and drainage in peritonitis are permanent, **Mayo Robson** (*Brit. Med. Journal*, 1892, i. 598) records two cases of purulent (large quantity of pus in each, one probably from appendicitis, one cause?) and one of tubercular peritonitis; all desperately ill at operation, but in excellent health after two years. Robson now believes that good is done in the adhesive form of tubercular peritonitis, by separation of adhesions and sponging or washing out, with or without drainage.

19. Surgery of the stomach.

Perforation of gastric ulcer: abdominal section and suture.—**Simon and Barling** (*Brit. Med. Journal*, 1892, i. 63) refer to a case (*Birm. Med. Rev.* Aug., 1891) of female, 22, who presented typical symptoms of perforation of some viscus: which? Section, six hours after perforation, below navel—severe peritonitis, no source found; pelvis drained. *Post-mortem*.—Perforation of ulcer on anterior surface of stomach near centre, where it might have been sutured. They give a fresh case: female, 20, three years' history of gastric ulcer; sudden severe pain and moderate vomiting. Admitted two days later—not very ill, no fever or vomiting. Next morning some collapse, pulse 126, feeble, slight abdominal distension and marked tenderness, especially in epigastrium and right hypochondrium; no sickness or pain after drinking milk and water. All symptoms increased, pulse reaching 150 in the next eighteen hours. Median abdominal section above navel; semi-purulent collection between right lobe of liver and stomach; a perforation felt with hard edges from which much watery fluid escaped, and more was drawn off by a tube; perforation ($\frac{1}{2}$ inch) exposed with great difficulty and closed with five silk Lembert's sutures; abdomen flushed, Keith's tube placed between stomach and liver, and wound closed; much collapse; death in thirty hours. *Post-mortem*.—Well-marked peritonitis, especially about portal fissure; a pint of thin pus in pelvis; perforation near centre of stomach, and its edges were adherent. A second ulcer, almost on point of perforating, on posterior surface opposite one sutured. Abdominal section, with flushing out, drainage and suture, if

possible, should be done in these cases ; and the pelvis should also be drained.

Pyloroplasty.—In this operation a strictured pylorus is cut through from healthy stomach into healthy duodenum ; the duodenal angle of the wound is then fixed to the gastric angle and the mucous and serous edges attached all along. Köhler showed at the German Congress a patient of 19 upon whom he had thus operated with excellent result. Brann and Schuchardt insisted that the incision should not be more than 8 c.m. long, or the union would be unsatisfactory. Löbker had done three pyloroplasties—two succeeded, one had to be supplemented by resection.

Pylorectomy.—Alex. MacCormick (*Brit. Med. Journal*, 1892, i. 553). Female, 54, operated upon after seven months' symptoms of pyloric obstruction ; tumour in pyloric region first felt under anæsthetic. Over this a 3-inch cut parallel to ribs and midway between them and navel was made ; the tumour was freely movable, and thicker than wrist ; it was drawn out and laid on a flat sponge—one posterior adhesion being separated, and two apparently enlarged glands removed. The omenta were tied off, and the mass removed with scissors. The stomach was first cut through from above, down, and two-thirds across, cleaned out, and the wound in it closed by silk Lembert's sutures ; then section was completed ; bleeding free, arrested by ligatures ; duodenum similarly divided for two-thirds its circumference above and behind, and the edge was attached by stitches tied inside to the hole left in stomach ; the tumour was now cut away. Finally, a row of Lembert's sutures was introduced all round, about $\frac{1}{8}$ th inch apart ; ninety-eight stitches were used between stomach and duodenum ; abdomen wound closed. The operation took two hours ten minutes ; little bleeding. Feeding was by rectum on first day ; then more and more peptonised milk was given by mouth. The highest temperature after operation was $100\cdot4^{\circ}$. Recovery was uninterrupted. After four months she was well nourished, and took her usual meals without inconvenience.

Two cases of pylorectomy.—Mayo Robson (*Med. Chi. Trans.*, June 14, 1892). Both for malignant stricture at the pylorus. In one recurrence of symptoms from scar-contraction necessitated a gastro-enterostomy four months later. Regurgitation of fæcal matter into stomach then began, assimilative power failed, and the patient died, apparently from fæcal poisoning. In the other, the patient died on the fifth day, apparently from exhaustion.

Gastro-enterostomy is now a fairly common operation. A. E. Barker (*Brit. Med. Journal*, 1892, i. 61), J. C. Renton (*ibid.*, 64), and A. E. Morison (*ibid.*, 277) each record a successful

case in which Senn's plates were used. In Barker's case the plates slid on one another, and a continuous stitch all round them was put in; the others needed only one or two Lembert's sutures, and Morison used also an omental graft. In each a bit of jejunum was brought up to front of stomach. In Renton's case no tumour (size of orange at operation) could be felt at end of eight months, and the patient was well nourished and free from symptoms; Morison's case gained over two stones in two months; Barker's died of pneumonia on forty-sixth day after he had left hospital. At *post-mortem* bowel and stomach adhered over area of two inches, and the fistula was $\frac{5}{8}$ inch across; no kinking of jejunum. Barker wraps his abdominal cases in cotton wool from head to foot for the operation—an excellent precaution.

Haasler (*Ctblt.* No. 32, 1892) reported three successful cases done without plates. He used the highest coil of jejunum, drawn through a hole in the transverse meso-colon and gastro-colic ligament to the front of the stomach near the greater curvature.

F. B. Jessett (*Clin. Soc. Trans.*, 1892, 105) read a paper on a collection of seventeen cases: twelve recovered, two of them dying after four and five months from closure of the opening. Senn's plates used in all. With a much-dilated stomach the incision should be in the left linea semilunaris; with moderate dilatation, the midline may be used. The stomach-opening should be $1\frac{1}{2}$ to 2 inches long, and near centre of stomach; prolapsing mucosa should be cut away, and a continuous stitch run round each opening, uniting mucosa and serosa. The highest possible piece of jejunum should be used, and chromic gut threads rather than silk, which may act as a permanent snare across the orifice. Feeding by mouth should be begun on day of operation or next day, with teaspoonfuls of warm water, peptonised milk, and Valentin.

F. T. Paul (*Liverpool Med. Chi. Journ.*, July, 1892), having noted the frequency of early or late failure of gastro-enterostomy from closure of the fistula, suggests the following method which he has found satisfactory in dogs. Take the first portion of the jejunum and make a transverse slit in that part which is most easily applied to the back of the stomach; through this slip a bone ring, $\frac{3}{4}$ inch across, armed with four double silk threads and needles, bring the needles out through the bowel-coats, and sew up the slit. Make a vertical $1\frac{1}{4}$ inch cut in the front of the stomach, opposite the point to which jejunum is to be applied; pass the needles *in regular order* through the transverse mesocolon and posterior stomach-wall out through the opening, cut off the needles and tie the eight ends tightly together so as to strangulate

the part of the stomach and intestine included between them. If necessary, make an opening at once through the centre of the area, cut short the sutures, close up the slit in front, turn up the stomach, and apply as many Lembert's sutures as possible round the junction. Paul says that the idea of the anterior slit in the stomach was borrowed from Maunsell (p. 204).

Jejunostomy was performed by F. B. Jessett for cancer of the cardiac end of the stomach in two cases. The method was the

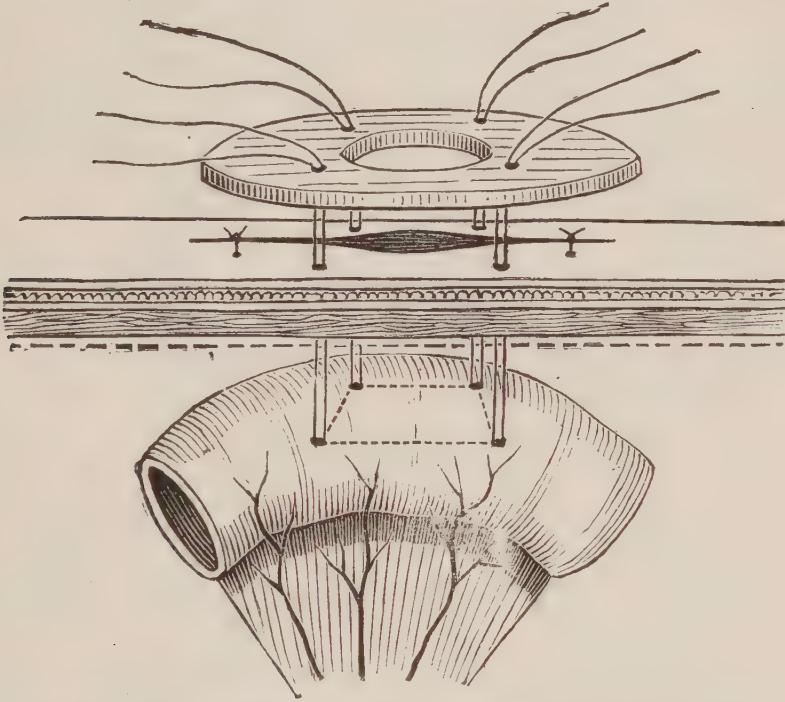


Fig. 11.—Jejunostomy : sutures passed through bone-plate.

following: 2-inch median cut between navel and xiphoid: omentum and transverse colon pushed aside, and jejunum hooked up *as near origin as possible* and drawn out of wound: a silkworm-gut stitch was carried longitudinally through the serous and muscular coats on each side of the gut, the two being 1 inch apart; two more were carried across the bowel between the points from which the longitudinal stitches escaped. The ends of these sutures were passed through the whole thickness of the abdominal wall and then through a bone-plate (Fig. 11). The ends of the wounds were closed by sutures, the sutures passing through the bone-plate were tied securely, a piece of the gut was drawn up through the hole in the plate, and transfixed by a pin (Fig. 12). After three days a small opening was made by cutting on to the pin, a winged gum-elastic catheter was passed and left

in. One case died after seven months, the other after six weeks. Jessett recommends this method for gastrostomy.

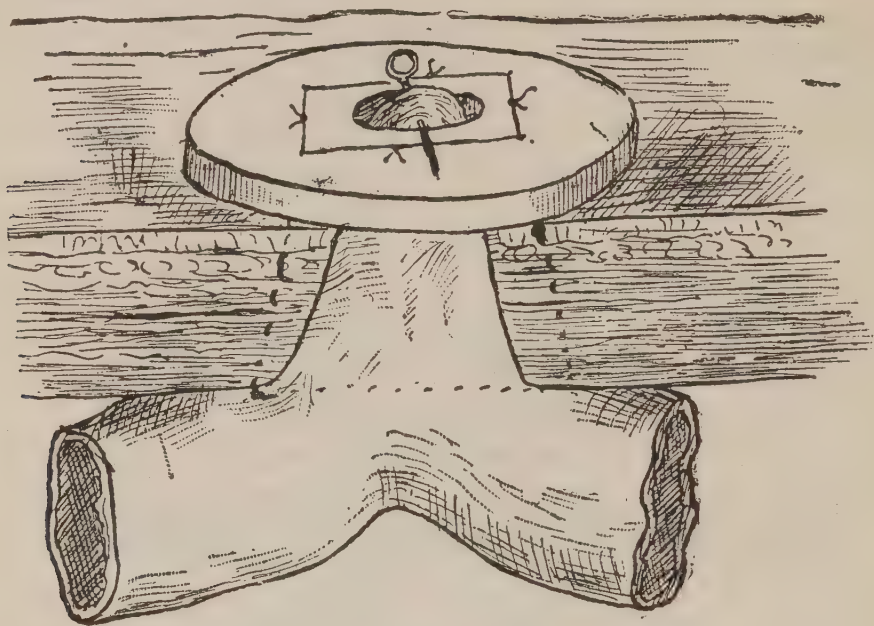


Fig. 12.—Jejunostomy : end of first stage.

Mayo Robson (*Trans. Med. Chi. Soc.*, June 14, 1892) had performed jejunostomy for cancer of the cardiac end. The patient was fed through the opening for two months, and then died from progress of the disease.

20. Treatment of intestinal obstruction.

J. Greig Smith (*Med. Chi. Trans.*, March 8, 1892; "Year-Book," 1891, 231) advocated operative evacuation of intestinal contents above the obstruction in cases with distension, for over-distension of gut was itself a cause of obstruction. The measures necessary might be : (1) Simple evacuation of contents and return of bowel ; (2) evacuation and drainage for several hours or days, and then return of gut ; or (3) establishment of a permanent opening. Anæsthesia should never be induced whilst the stomach was full of fluid. The stomach should be washed out and emptied, or a local anæsthetic should be used. Anæsthesia should be used only for the incision and placing of sutures. The steps in operating for intestinal obstruction were :—(1) Empty the stomach ; (2) anæsthetise lightly ; (3) make a 3-inch cut at the required spot ; (4) insert the sutures and clamp their ends on each side ; (5) discontinue the anæsthetic ; (6) seek the cause of obstruction quickly, and, if found, remove it ; (7) pass a Spencer Well's ascites-needle into the over-distended gut above the obstruction, connect it with an

aspirator-bottle (moderate vacuum only), and relieve distension ; time required varies from a few minutes to half an hour or more ; (8) withdraw the needle, suture the little wound, and drop the gut, if sufficiently relieved ; (9) if not, keep the gut in contact with the wound by means of a stiff skewer passed under it through the mesentery ; (10) dress with boracic acid and lint ; (11) firmly strap the abdomen to prevent prolapse of bowel. Do not leave the tube in bowel, but tap as often as may be necessary.

21. Surgery of the intestines.

Treatment of gangrenous gut in strangulated hernia.—**Heydenreich** (*Sem. Méd.*, No. 2, 1892) expresses wise views upon this subject. He believes that the successes and failures of immediate resection are at present about equal. But, even assuming resection to have the same mortality as the establishment of an artificial anus and its subsequent closure, the former method of treatment would have the advantages of saving time and obviating a distressing condition. For enterectomy to succeed the patient must be able to bear a more prolonged operation, the surgeon should be practised in the various methods of suture, should be well assisted, and should be able to conduct his operation with antiseptic precautions. An artificial anus can be established quickly by any surgeon alone and under ordinary conditions ; at any time, after the initial danger is over, it is open to the surgeon to restore continuity of the intestinal canal. [With regard to the time and skill required, the new methods, which have sprung up since Senn introduced his bone plates, have materially reduced both. Whilst they will render immediate enterectomy more frequently feasible, they will also render the closure of an artificial anus more easy and safe.]

G. A. Wright (*Brit. Med. Journal*, 1892, i. 909). M., 44 ; established a right inguinal anus ; after three and a half hours bowels cleared ; no food by mouth for twenty-four hours ; thorough disinfection of anus and washing out of bowel ; anus plugged, abdomen opened by vertical cut above it, the two pieces of gut found free, except at anus, clamped 9 inches up, drawn out and packed round, cut through $1\frac{1}{2}$ inches up, all four ends inverted and sutured, lateral anastomosis established by Senn's plates between highest and lowest segment ; drain-tube in abdominal side of anus. Rapid recovery ; a little non-irritant mucus escapes from anus.

F. T. Paul (*Trans. Clin. Soc.*, 1892) performed immediate enterectomy through a median abdominal incision in a case of inguinal hernia strangulated nine days, containing gangrenous

omentum and ulcerated bowel, which tore when touched. He grasped the gut close to the sac by a hand inside the abdomen, and rapidly drew the herniated piece through the abdominal wound [sponges should be used to prevent soiling of the peritoneum]; $1\frac{1}{2}$ inch excised, the mesentery being ligatured in one piece; enterorrhaphy was performed by Paul's method (pp. 201-3); discoloured omentum was tied and cut off and the inflamed sac excised; the femoral wound was drained. Time, fifty minutes. Good recovery; nothing seen of bone-tube.

Kendal Franks (*Brit. Med. Journal*, 1891, ii. 1097) excised $9\frac{1}{4}$ inches of gangrenous jejunum from an umbilical hernia, strangulated thirty hours. F., 36; end to end union by Gely's suture, drainage, recovery.

In a case of cæcal anus, **Davies-Colley** cut through the ileum above and the colon below the anus, closing all four ends, established lateral anastomosis by Senn's plates between the ileum and colon, and closed the wound. Subsequently, everything having gone well, the wound was reopened, and the anus, cæcum, and end of the ileum excised. Recovery.

Treatment of intestinal strictures. Resection of tuberculous ileum.—**Sachs** (*Arch. f. kl. Ch.*, 1892, Bd. 43). F., 41; prolonged constipation, tumour in right iliac region, size of fist; found to be ileum compressed by adhesions containing tuberculous masses; resected, and end to end enterorrhaphy practised: well in fifteen days. Sachs refers to thirteen cases of tubercle in ileo-cæcal region treated by operation; eleven recovered. Most were diagnosed as malignant.

Chronic irreducible intussusception: ileo-colostomy.—**R. Morison** (*Brit. Med. Journal*, 1892, i., 277). M., 57; anastomosis between ileum and ascending colon by Senn's plates, Lembert's sutures and omental graft; out on twenty-first day. Died of bronchitis two months after operation; fistula admitted finger freely.

H. W. Maunsell (*Am. Journ. Med. Sci.*, March, 1892) has adapted his method of enterorrhaphy (p. 204) to this. Make a free slit in the convex edge of the sheath; draw out the returning and entering layers until the neck of the intussusception appears outside the slit; transfix the base with two long pins, amputate the intussusception $\frac{1}{4}$ inch beyond the pins, pass the sutures, and unite the cut ends as above directed; reduce and sew up the longitudinal slit. This operation differs from **A. E. Barker's** (*Lancet*, Jan., 1892) in that there is no external continuous silk suture uniting the returning and entering layers at the neck.

Malignant disease at hepatic flexure: ileo-sigmoidostomy.—

Littlewood (*ibid.*, 1891, ii., 1314) established anastomosis between ileum and sigmoid flexure; out on twenty-third day, and at work as a miner in seven weeks.

22. Surgery of the liver.

Treatment of gall-stones.—**J. Goodhart** (*Brit. Med. Journal*, 1892, i., 219) traverses many of the received ideas with regard to gall-stones. He connects them with the female sex, spare and often active habit, frequently with mental worry. Carlsbad water does no good; olive oil seems to do good, but in the cases advanced to prove it the only positive proof of the diagnosis has not been offered. It may be taken with mashed potato, spinach, fish; or emulsified: 6 to 8 oz. a day.

Cholecystotomy: five cases.—**Knowsley Thornton** (*Brit. Med. Journal*, 1892, i., 765). Conclusions—(1) Properly conducted exploration is free from risk and is indicated after failure of dietetic and medicinal remedies. (2) The ducts are as completely within the sphere of successful operative measures as the gall-bladder. (3) Stones of moderate size impacted in ducts are best treated by needling and crushing (either by fingers or forceps); larger stones by incision, removal, and subsequent suture. (4) When débris is left in the ducts the gall-bladder should be opened, fixed in the abdominal wound, and drained. (5) When the ducts are incised and sutured, a tube should be placed in the peritoneum beside the duct, and the gall-bladder also drained externally. (6) Cases of recurring gall-stone colic, with distension of gall-bladder, should be operated on early, before the duct is damaged by impacted stone and before the stone has reached the common duct. Such cases recover rapidly, and experience will probably show that complete suture of the gall-bladder and of the abdominal wound will be safe.

Bland Sutton (*Clin. Soc. Trans.*, 1892, p. 161) removed three stones by direct incision from the common duct, and left it open with a tube running down to it—the peritoneum being shut off by adhesions. Free discharge of bile occurred from the wound, which granulated quickly and healed; patient left hospital on twenty-fifth day.

An operation for abscess of the liver.—**P. Manson** (*Brit. Med. Journal*, 1892, i., 163). There must always be difficulty in draining abscesses of the upper and back part of the liver. Manson describes a method of using gentle syphon action to empty these cavities which has proved very successful in his hands and in those of others. Special instruments which he figures are required, though no doubt substitutes for some of them could be extemporised. The idea carried out is that a large *longitudinally-*

stretched rubber tube shall be passed through a cannula introduced into the abscess; the cannula is withdrawn, the rod on which the tube is stretched is removed, and the shortened tube will then block the superficial and liver wounds completely, bridging across the peritoneum and preventing escape of pus into it. This tube is connected with a long tube full of some antiseptic fluid, and syphon action is thus established. An antiseptic dressing is applied round the wound, and the end of the syphon is placed in a bottle of carbolic. After four to six days only bloodstained serum comes away; then an ordinary tube and dressing will suffice.

F. A. Philippi (*ibid.*, 328) reports two cases treated by syphon drainage, a Nélaton's catheter being passed through cannula, fixed by collodionized gauze, and joined by glass to another tube leading to a bottle.

F. T. Heuston (*ibid.*, 707) exposed an abscess of the right lobe, no adhesions; aspiration of 20 oz., then incision—the edges being held up well to abdominal wound—and three pints of pus escaped; suture of liver wound to edge of abdominal wound and drainage. In fifteen days an abscess of left lobe came forward, and was similarly treated; but stitches would not hold in it, so a strip of gauze was introduced, and pressure applied below opening by pad and bandage. Both abscesses contracted rapidly, but patient died in eight days after opening of second: no sign of peritonitis; two large abscesses posteriorly.

A. G. R. Foulerton (*Lancet*, 1892, i., p. 626) performed a similar operation on M., 55, who had served abroad. The swelling in epigastrium was exposed, pus found by a needle at a depth of half an inch, a two-inch tear was made with sinus forceps passed along the needle, and its edges held well up by fingers, whilst greenish pus containing hydatid cysts escaped. Sutures were passed from within, through abdominal wall, and tied so as to close the peritoneal cavity. An attempt to suture the surfaces of liver and peritoneum before opening the abscess failed, as the stitches cut through at once. Recovery was rapid.

23. Surgery of the pancreas.

Traumatic cyst of pancreas.—**H. Littlewood** (*Clin. Soc. Trans.*, 1892, 205). M., 38, trodden on by horse, hoof striking left upper part of abdomen. Only local bruising at first; then, with slight rise of temperature, abdominal pain, tenderness in epigastrium, and swelling set in, the pain ultimately becoming very severe. On fourteenth day a large swelling spread from left hypochondriac and lumbar into epigastric and umbilical regions, pointing between umbilicus and left ribs. A syringe of dark blood was removed.

On twenty-first day he was much worse, and swelling more prominent; 10 oz. of dark sage-green alkaline fluid aspirated, and, later on, abdomen was opened above navel, the omentum torn through over swelling between stomach and colon, a small amount of fluid being found extravasated from earlier puncture; cyst incised, edges held up, and 40 oz. of fluid drawn off: cyst smooth-walled, reaching to posterior abdominal wall; at bottom a roughish mass, believed to be pancreas; sewn to abdominal wound, washed out, and packed with gauze. Healed in ten or eleven weeks. Table of five recorded cases given: four drained anteriorly, one posteriorly; all recovered. Littlewood could feel a finger in the cyst so clearly below last rib that in future he would be tempted to incise and drain here.

ORTHOPÆDIC SURGERY.

BY W. J. WALSHAM, F.R.C.S.,

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No very original methods or startling innovations in the treatment of the class of cases designated orthopædic have been promulgated during the current year. Indeed, but few papers of much originality have been written on the subject. The greatest activity in this department of practice has perhaps been shown in the United States. But the work done there has consisted rather in the discussion of the comparative values of older methods than in the suggestions of new forms of treatment. The fourth volume of the Transactions of the American Orthopædic Association has extended to some four hundred pages, and contains several interesting papers and discussions that will repay perusal. The same may be said of many of the original *mémoires* in the *Revue d'Orthopédie*, but several of the subjects treated of exceed in scope those that in Great Britain are looked upon as legitimately orthopædic, and much of the matter is ætiological and pathological.

At the recent meeting of the British Medical Association at Nottingham the treatment of severe cases of club-foot formed one of the discussions in the section for Diseases of Children; but no account of the proceedings of this section has so far been published in the English medical journals.

1. The treatment of congenital wry-neck.

Torticollis. Tenotomy by the open incision.—Maunoury (*Revue d'Orthopédie*, July, 1892). Schwartz (*ibid.*, July, 1892).

The question of the open versus the subcutaneous incision was somewhat fully discussed in the "Year-Books" for 1891 and 1892. No fresh argument in favour of either has been brought forward during the current year, but Schwartz and Maunoury both publish cases to emphasise the risks of wounding the jugular vein if a complete division of the tendon by the subcutaneous method is practised. In their cases the jugular vein was seen swelling up during expiration at the bottom of the wound. In

Maunoury's case it does not appear that any danger would have been run in subcutaneously dividing the muscle if a director had been passed behind it in the way mentioned by the reporter in past "Year-Books." In Schwartz's case, which was a very severe one, the deep fascia extended so far into the neck that it had to be shaved off the vein before it could be divided. In such a case, if all of the contracted tissues are to be divided down to the vessel sheath, no doubt the open incision is the safer, but it is doubtful whether a division of the posterior layer of the sheath of the sterno-mastoid and deep fascia is really necessary. The reporter has found that when the tendon has been completely divided subcutaneously the tense sheath readily yields to pressure over it by the fingers when the head is forcibly twisted so as to put it on the stretch. It is questionable when alarming symptoms, ending even in death, have occurred in the subcutaneous division of the muscle, whether the internal jugular vein has been injured or whether the anterior jugular, which crosses beneath the muscle just above the clavicle, has not been split in its long axis by the tenotome, so allowing of air to be sucked through it into the deeper veins.

2. The treatment of spasmodic wry-neck.

Griffith and Halwell, *Resection of the Spinal Accessory Nerve in Torticollis* (*Brit. Med. Journal*, April 9, 1892); Major and Appleyard, *Spasmodic Torticollis: Excision of a piece of the Right Accessory Nerve* (*Lancet*, June 18, 1892); Pearce Gould, *Spasmodic Torticollis treated by Avulsion of the Central End of the Spinal Accessory Nerve* (*Lancet*, June 18, 1892); Power, *Resection of the Four Upper Posterior Branches of the Cervical Nerves for Torticollis* (*Journal of Neurology and Mental Diseases*, Jan., 1892); Noble Smith, *Spasmodic Torticollis and other Spasmodic Movements of the Head* (*Lancet*, June 18, 1892); Edmund Owen, *Spasmodic Wry-neck treated by Section of the Spinal Accessory Nerve* (*Lancet*, June 18, 1892).

A number of cases of spasmodic wry-neck have now been treated by operation on the spinal accessory nerve or by section of the posterior branches of the upper cervical nerves, or by the two methods combined, and the procedure may now fairly be considered one of the established operations in surgery for the treatment of this distressing symptom. In the cases here reported, drugs of all kinds, galvanism, etc., had failed to give relief. In Mr. Gould's first case he merely intended to stretch and excise a considerable portion of the nerve, but on pulling on the central end he found it gradually give way, and a long, slender nerve was drawn out from the jugular foramen, and four inches and a half of

it excised. In two subsequent cases he has intentionally done the same operation. No special symptoms were noticed in Mr. Gould's case of avulsion of the nerve, but one would imagine, seeing the intimate connection of the nerve with other nerves at the base of the skull, that it would be safer to merely excise a portion or to stretch the nerve than to tear it out from the spinal canal. Mr. Noble Smith reports two additional cases of spasmodic wry-neck, in one of which he has excised portions of the posterior branches of the upper cervical nerves, and in another a portion of the spinal accessory. In Messrs. Griffith and Halwell's case, in which half an inch was excised, spasmodic movements continued on the opposite side of the neck. Mr. Hall, the president of the society before which the paper was read, mentioned the case of a gentleman in whom the removal of an inch of the nerve was followed by complete cure. In Mr. Power's case half an inch was excised of the posterior branch of each of the three upper cervical nerves on the side involved in the wry-neck. The wry-neck became spastic, though subsequently much relief was gained. Mr. Appleyard excised a piece of the spinal accessory nerve. The relief from spasm and pain was perfect, but five months afterwards the patient returned with a similar condition of the opposite side, the side operated on remaining cured. Thus in two cases the affection has returned on the opposite side; a possibility which should not be lost sight of when recommending this method of treatment. As regards the operation, the incision, as especially emphasised by Mr. Owen, should be free. It should be remembered that the nerve runs almost vertically, and enters the deep aspect of the muscle some little distance from its anterior border at almost the level of the angle of the jaw. The incision is perhaps best made from the tip of the mastoid process downwards for about three inches along the anterior edge of the sterno-mastoid, and the posterior belly of the digastricus, from beneath which the nerve emerges, is the best guide to it.

3. The treatment of spastic paraplegia.

Scudder, Bullard, Sayre (*Transactions of the American Orthopædic Association*, vol. iv.). The question of tenotomy in spastic paraplegia was brought prominently forward by Dr. Bradford in 1890, who advocated very free division of the tendons and fasciæ, and in such situations as the ham by the open incision. Further contributions on the subject are furnished this year by the above-named surgeons. It is affirmed that after tenotomy the spastic contraction is in a measure overcome, the opposing muscles regain some of their power, and reconstructions and consequent deformities of the limbs do not occur. The reporter has practised tenotomy

in such cases with apparently some benefit. Deformed limbs can no doubt be put straight, but it is still a question how far the spastic condition of the affected muscles will remain improved.

4. The treatment of spinal abscess.

Townsend, Burrell, Wright, Ap Morgan Vance, Shaffer, *The treatment of Abscesses in Pott's Disease* (Trans. American Orthop. Assoc., vol. iv.); Treves (*Lancet*, 1892, vol. i. p. 1122); Myers, Gibney (*New York Academy of Medicine*, April 15, 1892).

The still vexed question of what is to be done with a spinal abscess formed one of the subjects of discussion at the American Orthopædic Association, and, as hitherto, there was no consensus of opinion as to whether such abscesses should be left alone, aspirated, or opened. There is no doubt much to be said in favour of all views. A spinal abscess, it is contended by those who would leave the case to nature, does not contain true pus, and consequently does not necessarily fall under the surgical dictum that wherever pus is present it should as soon as possible be got rid of. Such abscesses do undoubtedly occasionally disappear when the bone disease is stayed. Several examples of the drying up and complete absorption of even very large psoas abscesses were reported. Those who would leave such abscesses alone, trust entirely to improving the general health and placing the spine, as far as it is possible to do so, at absolute rest. Dr. Hoffa, of Würzburg, in his remarks, affirmed that in Germany surgeons were coming to hold the view that, as a rule, it was on the whole best to leave large abscesses alone, except when they cause much pain, give rise to high temperature, when they are pointing, or when it appears certain that the primary bone disease is cured. On the other hand, Mr. Marsh gave it as his opinion that in England the feeling was gaining ground that these abscesses should be opened, since they are foci for general infection, and in his experience generally go on increasing till they may reach a very formidable size. From the statistics furnished by Dr. Townsend of seventy-five cases of abscesses in Pott's disease, it appears that in twenty-one no further treatment than fixation of the spine was employed, and in only three of these did the abscesses disappear. Dr. Bradford considered it not at all uncommon for such abscesses to be absorbed under proper treatment. He had been fortunate enough to have such cases. Dr. Shaffer's results, after he had adopted the plan of opening every chronic abscess, were not so satisfactory as those that followed non-interference. In opening a tubercular abscess from Pott's disease we are treating, he says, a symptom rather than disease. We are tapping a reservoir and paying but little attention to its source. We are in too much

haste to give exit to the so-called pus that keeps flowing from the sinus leading from the abscess to the diseased bone. In spite of our external antiseptic dressings, high temperature will frequently develop, notwithstanding the gauze, and protection, and irrigation, and drainage; and repair is delayed rather than promoted by our efforts to find a short route to recovery. After an experience of many cases and many methods, he has come to the conclusion that it is best to ensure as perfect a mechanical protection of the diseased spine as possible, and to maintain the general health in every available way, hoping that the actual disease might cease before the abscess opened, or to await the occurrence of either severe local or important general symptoms, due to the abscess itself, before resorting to incision. After he adopted this plan, he found to his surprise that many abscesses entirely disappeared; some became quiescent or encysted; few gave rise to trouble, and those that opened spontaneously almost uniformly did well. If the original disease of the spine is cured, the abscess becomes but a local affair and then usually disappears spontaneously.

As regards aspiration, Dr. Burrell maintains that either alone or combined with injection of the abscess cavity, it is an uncertain measure, since the abscess cavity is rarely completely evacuated, and when germicides are used there is a danger of systemic poisoning. In his opinion it should be reserved for those cases where temporising has been carried out, and relief of tension in the abscess is thought necessary. Mr. Marsh's experience of aspiration at the Children's Hospital has not been encouraging. For five years, he says, this treatment was persistently employed, but the abscesses were rarely cured, and in a considerable proportion sepsis at last set in. In nineteen cases treated by Dr. Townsend by simple aspiration the abscess completely disappeared in eleven. These results are exceedingly good. In favour of aspiration, even if ultimately the abscess has to be opened, it may be said that if repeated sufficiently often (care, of course, being taken to prevent sepsis and to perforate the subjacent tissues where there is sufficient substance to allow of the primary union of the puncture), tension is removed and the size of the abscess reduced; and although it is true that the whole of the caseous material and the lining membrane of the abscess are not got rid of, still it would appear that in removing the more fluid portions of the contents, the surgeon is copying nature's method of spontaneous cure, in which the fluid portion is absorbed and the abscess dries up. If in the meantime the primary disease of the spine can be stayed, there appears to be a fair chance of cure. Little was said

at the Congress of the injection after aspiration of iodoform emulsion, or other antiseptics. The reporter has thrown in as much as three or four ounces of this material, and can speak highly of the plan—a plan, it will be remembered, which has been ably advocated in England by Mr. Mayo Robson. On the whole, the majority of those who took part in the discussion were perhaps in favour of opening the abscesses. Theoretically, said Dr. Townsend, the opening of these abscesses is safe, but practically it is not. If a spinal abscess is opened, every care should be taken to prevent secondary infection by pyogenic micro-organisms, and the whole of the caseous material and granulations lining the abscess cavity should be as far as practicable scraped and sponged away, the surgeon's aim being to leave healthy raw surfaces that may unite by the first intention. To ensure such union, firm pressure should be applied so as to bring the walls as near as may be in close contact. Where the bone disease is already stayed, where necrosed fragments that are keeping up the irritation can be removed, or where carious bone can be scraped or gouged away, the best results, if due care is taken to keep the parts aseptic, may thus be obtained, and in these circumstances it is better, perhaps, not to employ a drain. Unfortunately, however, it is seldom, in the reporter's opinion, that the whole of the abscess cavity can be thus treated, and his experience is that there nearly always exists a narrow track leading from the main abscess cavity to the diseased bone, which cannot be thus satisfactorily dealt with. If the bone at the bottom of this track is still in an active condition, the abscess cavity, if closed, is but too apt to fill again. If a drain is employed, a sinus may remain for months or years, its sides becoming infected with the tubercle bacillus. In these circumstances it is advised by Mr. Wright, amongst others, that the sinus should be re-scraped as often as it may become thus infected. In the meantime it is of the highest importance that the antiseptic precautions be continued as long as the sinus exists. In case of psoas or iliac abscess the opening should be made in the loin, to ensure being as near the disease as possible and having a dependent drain. If a tube is left in this situation, firm pressure should be applied to the thigh and over the iliac fossa, to endeavour at least to obliterate this part of the abscess.

To sum up, it would appear that whilst the abscess is small and is not increasing in size, every effort should be made to place the diseased spine at rest and to improve the general health. If, after this has been as far as practicable ensured, the abscess still increases in size, it should be aspirated, all precautions being taken

to prevent septic infection, and when emptied as far as possible, injected through the aspirator with iodoform emulsion. If good is to come from this method of treatment, the reporter holds strongly that should the abscess show signs of re-filling it must not be allowed to attain its former size, but the aspiration and injection should be repeated again and again till nothing more can be withdrawn. Where this treatment has been persistently practised, the reporter has had the most favourable results, the abscess finally ceasing to refill, and ultimately disappearing. Though, theoretically, aspiration may be an inferior method to free incision and extirpation of the walls of the abscess, it is practically safer; since, notwithstanding every care, secondary infection will, sooner or later, at times occur, and before the abscess is opened it is impossible to say whether the whole cavity can be effectually dealt with.

5. The treatment of lateral curvature.

Petit (*Assoc. Franc. pour l'avanc. des Sciences*, Marseilles, 1891); Denucé, *Scoliosis of Adolescents* (*Revue d'Orthopédie*, May, 1892); Bradford, *Methods of forcible correction in Lateral Curvature* (*Trans. American Orthop. Assoc.*, vol. iv.); Phelps, *Wooden Corset for Scoliosis*.

For the last few years the chief novelty in the treatment of lateral curvature is the attention that surgeons have been giving to overcome the rigidity of the spine, and to render it sufficiently supple to allow of the numerous muscular exercises, which have from time to time been advocated, having the better effect. In the "Year-Book" for 1890, the weight method of Fischer for overcoming this rigidity, and Beely's apparatus for facilitating the method, were described. Since then numerous modifications of Beely's apparatus and the method of applying it have been invented in France, in Germany, in the United States, and in Great Britain. During 1892 an ingenious chair for forcibly correcting the rotation of scoliosis has been described by Bradford. It is provided with two uprights on each side, united by semicircular cross-pieces of steel, which run in front and behind the chest, and from which two pressure-plates, worked with screws, are attached to forcibly act on the projecting ribs. The patient is placed on the chair, and the pelvis fixed by two lateral well-padded plates attached to the lower part of the uprights. Denucé, in a long paper in the *Revue d'Orthopédie*, discusses especially this question of rigidity. In the early stages of lateral curvature, before the ligaments have become shortened and the intervertebral discs contracted on their concave side and their central incompressible so-called fluid nucleus displaced towards the convexity, judiciously

selected muscular exercises are fast becoming recognised on all hands as the most efficient and scientific way of correcting an incipient curvature, or at any rate of preventing it from getting pronounced. When rigidity has set in, exercises alone are of little or no avail. The rigidity must first be overcome, the contracted ligaments stretched, and the spine rendered supple before the muscles, strengthened by exercises, can be brought into efficient play. For doing this, amongst other methods, that of lateral suspension of Lorenz, in which the patient's feet are raised from the ground, and Kirrison's modification which allows one foot to touch the ground, have been found efficacious, as is also the method of Barwell, the so-called rachylisis. Another method of suspension has been recently described by Bradford. The patient stands under a tripod, and is suspended by the ordinary head-sling. Broad straps are passed round the trunk—one around the thorax, one at the hips, and another one between the two as a counterpull. To the straps are attached cords which pass through pulleys, and to them are fastened handles to be pulled by the patient. In this way the curvature of the spine can be over-corrected by the patient's own efforts. The reporter has simply used a weight suspended by a broad bandage over the convexity of the ribs, with the patient's body in the horizontal position, and has found by this means that the rigidity in even very severe cases has to a great extent been overcome.

6. The treatment of congenital club-foot.

Mackenzie, *Open Incision on the concave surface in the Treatment of inveterate cases of Talipes Equino-varus* (Trans. American Orthop. Assoc., vol. iv.); **Judson**, *The weight of the Body in relation to Treatment of Club-foot* (Boston Medical and Surgical Journal, Sept. 22, 1892); **Kirrison**, *Tenotomy in Equino-varus* (Gaz. des Hôp., Dec. 3, 1891); **Phocas**, *Congenital Club-foot treated by Phelps's Method* (Revue d'Orthopédie, May, 1892); **Longuet**, *Notes on Club-foot* (ibid.); **Ewens**, *Tarsectomy in intractable cases of Talipes Equino-varus* (Brit. Med. Journal, 1891, vol. ii., p. 844); **Chaintre**, *Operation for Club-foot* (Revue d'Orthopédie, Nov., 1891).

Further cases have been reported during 1892 of Phelps's open incision with division of all the soft parts on the concave side of the foot down to the tarsus. We are perhaps hardly in a position at present to judge of the ultimate results of this operation till we know more of what the condition of the foot will be some years after it has been performed. It has been done many times, but the reports are made for the most part within a short time after the wound has healed. The foot is then said to be plantigrade, and the varus position more or less overcome; but

it is not, as a rule, stated whether the foot can be flexed beyond a right angle. In some cases it is distinctly said that the equinus position was not improved. There is no doubt that after the division of the soft structures on the inner side, the foot can be placed in a good position; but, as was shown by the reporter at the recent meeting at Nottingham, the rectification is only obtained by separating the articular surfaces. The shape of the tarsal bones themselves remains untouched; and it becomes a question whether relapses will not be more common than when the bones, whilst still soft, have been moulded into shape by gradual pressure, by plaster of Paris, or other methods.

Cases of the removal of the astragalus and a wedge-shaped portion of the tarsus have also been published during the past year. For certain severe cases bone operations on the tarsus are now generally regarded not only as justifiable, but as well-recognised surgical procedures. Great improvement can no doubt be obtained, but it cannot be too often insisted on that such a foot is still, after all, an imperfect member, and not to be compared with the foot in which the deformity has been efficiently treated by more gentle means in early infancy.

7. Treatment of flat-foot.

Larabie.—*Cuneiform resection for severe cases of Congenital Valgus* (*Revue d'Orthopédie*, Sept., 1892).

The patient was 17. The deformity was extreme, the sole being convex, and the dorsum concave. Division of the extensors, the peronii, and the tibials was futile to correct it. The whole of the scaphoid, the head of the astragalus, a portion of the first cuneiform, and a corner of the cuboid were removed. The foot was then corrected and the bones were united by wire suture, the result being that the patient was plantigrade, and the foot was useful. For severe cases like the foregoing some form of operation on the tarsus is necessary. The success attending the operation here performed would appear from the illustrations of the foot before and after treatment to be very good. There can be but few cases, however, which require such radical measures.

8. Treatment of congenital dislocation of the hip.

Bradford, *Appliance for Treatment of Congenital Dislocation of the Hip* (*Trans. American Orthop. Assoc.*, vol. iv.); **Phelps,** *Congenital Dislocation of the Hip* (*ibid.*); **Barwell,** *Operative Treatment of Congenital Dislocation of the Hip* (*Royal Medical and Chirurgical Society*, March 22, *Lancet*, vol. i., p. 690); **Schede,** *Reduction by the Open Incision* (*Archiv für Klinische Chirurgie*, xliii. Band. Heft. 3 and 4); **Lorenz** (*Centralblatt für Chirurgie*, Aug. 6, 1892).

This is undoubtedly one of the most difficult deformities that the surgeon has to treat, and up to a few years ago it practically remained untreated. Of late years a new impetus has been given to the treatment of the affection by the successful cases related by **Dr. Buckmaster Brown**, in which he succeeded by continuous extension lasting over several years in overcoming in a large measure the deformity, and by the operations of Hoffa, Lorenz, and others, of forming a new acetabulum for the displaced bone. During 1892 several new methods of applying mechanical extension so as to allow the patient to some extent to get about during the prolonged treatment have been contrived, and several new operations, or modifications of operations formerly described, have been reported. **Mr. Adams** improved the method of **Dr. Buckmaster Brown** by placing the patient on his traction couch, which is practicably a portable bed, allowing the child to be moved about without relaxing the extension. **Mr. Barwell** advocates, as an aid to extension, tenotomy of the horizontal muscles which proceed from the pelvis to the femur, leaving the rotators intact. In France the extension in bed treatment has been much employed, and ingenious contrivances for allowing some movement at the hip for the purpose of grinding out a new acetabulum for the head of the bone in its improved position have been devised. In America the long traction hip-splint has perhaps been in chief vogue, but it is said by some to be unsatisfactory, since after wearing it for years, there may be either a relapse, or one limb be still found shorter than the other. **Dr. Phelps** divides the treatment into three stages—a period in bed, a period with the long traction splint with a lateral pressure screw, and a period with the walking splint. The bed treatment should continue till the limb can be drawn down to the length of its fellow if possible, and whilst being carried out pressure should be made on the great trochanter, so as to excite some amount of irritation, which will result in the growth of new tissue around the head of the bone. In the second stage a traction splint with a lateral screw is worn, the patient being allowed to get about on crutches with a high boot on the opposite limb. In the third stage the high boot is dispensed with, and the patient walks about with crutches without the splint.

Dr. Bradford's apparatus is designed to allow the patient whilst under **Buckmaster Brown's** extension treatment to sit, to be carried about, to drive, and to enjoy the opportunity of walking to a limited extent. The treatment is begun by making horizontal traction with a weight and pulley, the patient being fixed on a frame provided with a bar across the pelvis, to which is attached

a perineal band to prevent the body from being drawn down by the weight on the limb. This is continued till the limb can be drawn into position, with the trochanters nearly on a level on the two sides. After the limb has been sufficiently extended in the horizontal direction, traction is next made in a vertical direction at right angles to the body. To enable the child to sit up, a frame is applied to his back, and laced round the trunk. From this, two arms slightly longer than the femora proceed at right angles to the axis of the trunk. Adhesive plaster is fastened to the thigh, and the pull made by straps connected by buckles to the steel bar. Counter-force is exerted by means of a strap over the abdomen, and by the pressure of the leather frame. In this way the tendinous and ligamentous contractions are overcome, and the limb at length can be drawn into position, though it slips back on relaxing the extending force. During the extension treatment, daily manual exercise of the limb, held in its normal position, is practised, a strap being placed around the pelvis over the trochanters so as to make slight pressure on the head of the femur, and thus facilitate the formation of a new acetabulum. In a case treated in this way it was found that after two years the head of the femur not only remained in the nearly normal position in which it had been placed, but that it could not by any manual force be pushed out of it. The child was subsequently suspended by means of a perineal sling to a contrivance so constructed that he could touch the ground with the feet, but could bear no weight upon them. The arm of a kind of crane from which the suspension was made swung on a pivot, and a trolley running along the arm carried the sling, thus allowing considerable freedom of locomotion for the child. This was used for a year, and at the end of that time the child was placed in splints such as are used for the protection of the hip in the convalescent stage of hip-disease.

With regard to the operative treatment, Schede reports four cases of congenital dislocation of the hip successfully treated by Hoffa's method of forming a new acetabulum, and Lorenz publishes six cases treated by a modification of this method. Lorenz holds, in opposition to Hoffa, that the chief difficulty of bringing down the head is not due to the pelvi-trochanteric muscles. These, he says, are relaxed, whilst those running in the same direction as the long axis of the femur are contracted and rigid. The most contracted are the hamstrings, the rectus, and to a lesser degree the adductors. His operation consists in first dividing subcutaneously, during forcible extension, the adductors, and through the same incision detaching the ham-

strings from the tuberosity of the ischium. An incision 3 inches long is carried directly downwards from the anterior superior spine of the ilium ; the deep fascia, the tensor vaginæ femoris, and the gluteus medius are divided transversely, then the rectus, and the anterior portion of the capsular ligament by a crucial incision. Extension of the limb is now discontinued, and the region of the acetabulum rendered accessible by flexing, adducting and thrusting upwards the femur ; portions of capsule are detached from the neck of bone, and the acetabulum, or region corresponding to it, can now be readily attacked by a gouge, or sharp spoon, guided by the finger. As the acetabulum is deepened, care should be taken to spare the osseous tissue which forms its upper boundaries. The head is placed in the new acetabulum, and the wound closed.

SURGICAL DISEASES OF CHILDREN.

BY EDMUND OWEN, M.B., F.R.C.S.,

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I.—DIPHTHERIA AND TRACHEOTOMY.

1. Diphtheria or tonsillitis?

Thomas F. Raven, L.R.C.P., M.R.C.S., Broadstairs (*Practitioner*, Aug., 1892):—"There is, probably, no disease of the same importance with regard to which so many conflicting opinions are held and so much doubt entertained as 'diphtheria.' The name itself, indicating as it does merely one symptom of the disease—and that by no means an invariable one—introduces confusion: the great variety of its symptoms, in degree and in kind, and in relationship to other diseases and to those of other animals, has, so far, rendered its definition impossible, while variations, depending upon conditions of soil, climate, and surroundings, still further complicate the problem. It is easy enough to pronounce upon a case when a membrane is found upon the tonsil, accompanied with general prostration, albuminuria, glandular swelling at the angle of the jaw, and other text-book appearances; but it is a very different thing when the symptoms are slightly, it may be scarcely at all, developed."

Mr. Raven isolates every case of sore-throat when he sees any trace of exudation upon the pharyngeal mucous membrane. If the spots are multiple, if the attack is sudden and sthenic, if there are no concurrent illnesses of a "suspect" nature, he is inclined to regard it as non-diphtherial. On the other hand, there may be symptoms and circumstances which determine a different conclusion. There are, however, cases that take a position half-way between these extremes. A well-marked patch may be seen on a tonsil. The general disturbance may be of a nature to make one suspicious. At the same time one hesitates to call the case by the unblest word "diphtheria." In such instances, which are very common, it is best not to commit one-

self to an opinion until the case is seen through and until the sequelæ have had time to show themselves.

"Apprehensive parents ask the doctor—nay, he anxiously asks himself—whether such and such a case should be called 'diphtheria.' He comes badly out of a cross-examination at the hands of those who have suffered an experience of the affliction. If he calls one sore-throat 'diphtheria' why not all the others? If he brands them all with this significance is he not a panic-monger of the most pronounced type? Assuming what from clinical observation seems pretty clear, that from a sore-throat of a mild and apparently benign character the virus may be, under favourable conditions for its development, cultivated through a series of cases until a true 'diphtheria' results, it appears reasonable to suppose that the same process may take place in a single individual—that a sore-throat, in its origin non-diphtherial, may, with favourable opportunities for the growth of the virus, gradually increase in virulence until genuine 'diphtheria' is produced. If there be any truth in this supposition, it emphasises the importance of the very first elements of treatment."

The more that one sees of diphtheria the more fully does one recognise the difficulty of speaking positively, in the early days at least, as to the exact nature of a "sore-throat."

2. The relation of pseudo-diphtheric angina to diphtheria, with special reference to scarlatinal pseudo-membranous angina.

A paper on this subject was read by Dr. W. D. Booker before the American Pediatric Society, May 3, 1892. He remarked that in mild cases of scarlatina the throat affection does not differ from simple angina, and that in more serious cases a pseudo-membranous affection often occurs which presents a striking resemblance to diphtheria, and offers the greatest difficulty to a differential diagnosis. Similar pseudo-membranous anginas occur secondary to measles and other infectious diseases, but more seldom than in scarlatina.

An epidemic of scarlatina prevailed in Baltimore the winter of 1891, characterised by frequent complication of pseudo-membranous angina, which in some cases preceded the exanthem several days, and so closely resembled diphtheria as to render a diagnosis with the unaided eye difficult, if not impossible. In many cases, even where the exanthem was present, the throat affection had such marked characteristics of diphtheria that physicians were often puzzled for an opinion.

At the end of a paper by Dr. Henry Koplik, which was read before the same society upon forms of diphtheria that simulate

simple angina, he writes :—"Thus in this paper are presented a class of cases which are exceedingly baffling to the general practitioner, and I confess, should I be confronted to-morrow with cases presenting exactly similar appearances, I should hesitate as to which way to turn in making a positive clinical diagnosis. I have refrained from picking out any *clinical* symptoms and insisting upon an analysis and acting thereon. This has been done too often, and it seems must be fruitless. The only test is a serious investigation of the exudations themselves."

"Must we then enter the sick-room and remove a piece of membrane and convey this to our laboratories to be investigated? This seems at the present time scarcely practicable in general practice. Moreover, the investigation of these cases presupposes an amount of bacteriological skill and judgment, the result of careful and time-robbing preparation. There is one thing, however, we can all do, and that is to isolate all cases which in any way impress us unfavourably. Our patient does not lose anything thereby, and our conscience is immediately absolved of all responsibility."

Thus, the more we read, the more assured do we become of this, that in many instances it is impossible for the practitioner to say whether a sore-throat is "diphtheritic" or not; and that, in the face of this difficulty, the wise course is to *isolate the patient*, and wait.

In the *Lyon Médical* (1891) Dr. Lyonnet directs attention to the articular and peri-articular complications of diphtheria. Though, as he admits, they are excessively rare, the practitioner should know of and be prepared for their possible intercurrent. In one severe case, after the disappearance of certain paralyses, a tender and painful swelling appeared at each knee. On making an exploratory incision into one of them only a thickened mass of connective tissue was discovered; the joint was free. In another case of diphtheria in a child of ten years, under the care of Dauriac, of Bordeaux, a very large number of joints were implicated; but they cleared up under the influence of salicylic acid.

The article, which is full of references bearing on the subject, concludes with speculations as to the pathology of the complication. Dr. Lyonnet is inclined to regard the inflammation as being of a trophic rather than of an infective nature.

3. Anæsthetics in tracheotomy.

In the last "Year-Book" we thought it well to speak strongly on the advisability of invariably administering an anæsthetic for the operation of tracheotomy, unless the child be actually insensible. We are glad, therefore, to find the following sentence

in the "American Text-Book of Surgery"*:—"Whether in child or in adult, the head and neck should be stretched over a pillow or sand-bag, and an anæsthetic should always be given, unless the patient be already unconscious, or cocain be used." For our own part, we have seen such alarming symptoms follow the subcutaneous injection of cocain in the case of the adult, that we would never recommend its subcutaneous employment in children. Cocain cannot be used without danger; and, in the case of children, something more than the mere elimination of pain from an operation is desired. Though the child might not feel, he would not fail to be alarmed at the unwonted sight of strangers around his bed. It is the surgeon's duty to shield the child from all this, and it is not to be surmised that an American operator would choose cocain for his little patient.

Reading on in the "Text-Book" we are naturally interested in seeing what the authors have to say regarding *intubation*. It is described as being "a distinctly American improvement upon the old operation of tracheotomy." Though, without undue captiousness, we would take exception to the use of the word "improvement," we have nothing to offer in its place. "Substitution" will not do; for it is generally admitted that there are cases in which intubation entirely fails to meet the indications; when, perforce, the intubator has to resort to tracheotomy. To the succeeding statement, however, we willingly subscribe, viz., that "Enough time has elapsed since its introduction to make it very plain that it constitutes a large addition to our means of affording instrumental relief, and to give it a dignity and importance which, perhaps, no other operation of equal simplicity possesses."

In the new edition of their excellent volume on the "Diseases of Children," † Messrs. Ashby and Wright express themselves as follows:—

"Of eleven cases of intubation under our care, in three success followed; in three tracheotomy was subsequently successfully performed; and in four instances the children died in spite of tracheotomy. The operation appears best adapted for cases in which there is little or no false membrane." There can be little doubt, I think, that the "bad cases" of laryngeal diphtheria will still be left for the tracheotomist.

Mayer (*Münch. Med. Woch.*, April 5, 1892) analysed 316 cases of diphtheria subjected to tracheotomy. Of these cases 103 recovered. Neither the character of the primary disease, nor the

* "An American Text-Book of Surgery." Philadelphia, 1892: W. B. Saunders.
† Longman & Co., 1892.

spread to the bronchial tubes, nor the presence of pneumonia, is a contra-indication; but children under one year of age are unfavourable subjects. Only children *in extremis* were operated on without chloroform. Mayer believes that tracheotomy is preferable to intubation.

4. A simple and economical tracheotomy tube was figured in the *Brit. Med. Journal*, April 30, 1892, by Dr. Hastings—late of the Children's Hospital, Shadwell.

He suggests that after the track has become fairly free by wearing a silver tube for two or three days, a soft and efficient tube can be easily made with a piece of india-rubber drainage-tube.

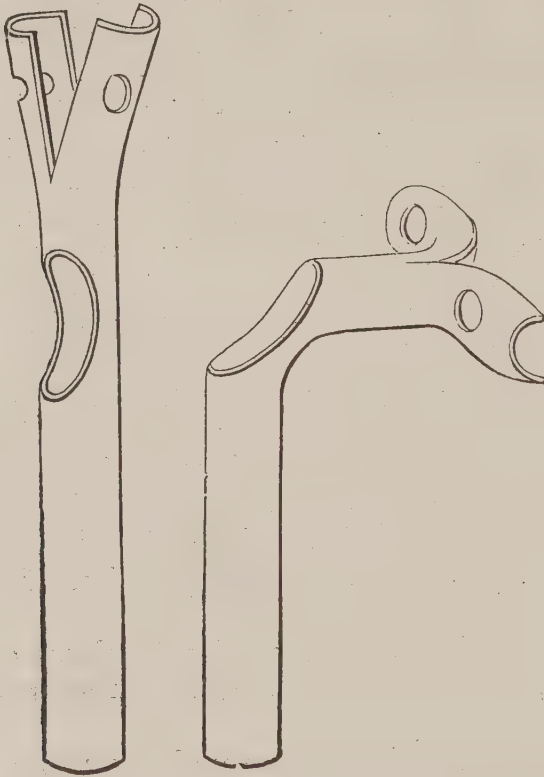


Fig. 1.—Soft tracheotomy tubes.

The accompanying wood-cuts render needless any description of the apparatus (Fig. 1).

In inserting the tube the opening must be turned towards the back of the trachea, so that it may take the place of the window which is found at the angle of many metal tracheotomy tubes; the part below the window then lies in the trachea without any tilting. Dr. Hastings had successfully used these tubes in cases in which the metal ones had kept up tracheal irritation.

II.—TUBERCULAR DISEASE OF SPINE AND JOINT.

1. The treatment of compression-paraplegia following Pott's disease:—Laminectomy.

Southam (*Brit. Med. Journal*, 1892, i., 655). Female, 3½; symptoms of cervical caries 1 year; not much deformity. Steady increase of symptoms, and finally complete paralysis of upper and lower extremities; incontinence of urine and fæces; sensibility impaired, but not destroyed; ankle-clonus and exaggerated knee-jerks. Respiration shallow; profuse perspiration. Removal of most prominent spines (sixth and seventh), and of a quantity of soft granulation tissue from about dura, which did not pulsate. Partial return of power in upper limbs at once, no change in lower. Two months later it was thought that there must still be pressure on cord; arches of fourth and fifth cervical and first dorsal vertebræ were resected, and a quantity of granulation tissue dissected from cord. For some months improvement was very slight and limited to the arms; after nine months power returned slightly in legs, and some control was gained over rectum and bladder. Two years after second operation the patient can stand and walk alone, and has complete control for sphincters. Head sunken on shoulders, neck short; scar depressed, new bone filling gap.

A. H. Tubby, F.R.C.S. (*Med. Press and Circ.*, April 13, 1892.) In introducing this subject, Mr. Tubby refers to a paper which was read by Mr. Arbuthnot Lane before the Clinical Society on October 23rd, 1891, detailing eleven cases of laminectomy in which he claimed to have achieved a large amount of success. In fact, he was almost inclined to deduce the conclusion that "such cases could not have recovered from the paraplegic condition without such interference." Mr. Tubby was impressed by the improvement as regards motion and sensation in one of the cases so operated on—a case which he had the opportunity of watching throughout. But he remarks that he has since been struck by the number of cases which, partially or completely paraplegic on admission, have left the hospital able to walk after prolonged rest in bed and treatment by extension, without any operation having been performed.

"It is generally admitted that pressure on the spinal cord in these cases is due, not to the falling in, so to speak, of the bony walls of the spinal canal, but to the inflammatory thickening of the membranes, and the mass of granulation tissue, together with, in severe cases, the formation of an abscess.

"The question arises as to what should be done in the way of

treatment. Two courses are open, either laminectomy or the expectant treatment—the former radical, the latter conservative.”

Mr. Tubby remarks that Mr. Lane pointed out at the Clinical Society that in ten of eleven cases of laminectomy performed by him the cord was compressed by an abscess, and that the size and extent of the abscess cavities rendered it impossible for the bodies to ankylose without operative interference; that the conditions, in fact, found at the operation appeared in every case to preclude the possibility of recovery of the spinal column without surgical interference. This not only relieved the compression, but gave the surgeon the opportunity of removing necrotic and diseased bone, and of after-treatment of the cavities. In the discussion that followed, Mr. Davies-Colley quoted a case in which he had performed the operation twice on one patient with no benefit. Mr. Bowlby had operated twice with benefit, but there was no pus found. Mr. Tubby's opinion was that general experience did not warrant the conclusion that every case of paraplegia should be operated on as early as possible, or that treatment by recumbency was bad in principle and practice.

In the few instances in which I have had the opportunity of watching patients who have been submitted to the operation of laminectomy for the relief of motor and sensory paralysis, I have been impressed rather by the equanimity with which they passed through the ordeal than by the improvement which they showed after it. Without doubt the operation is a very serious one. Further, it has this disadvantage, that it removes from the back of the carious angle the very elements upon which the future security of the spine must depend. If the spinal column of one who has recovered with severe angular curvature be examined in the mortuary or the museum, it is often to be noticed that the laminæ have been welded together by the deposit of bony cement. And, further, it is noticed that though the spinal column is bent almost double, the salient angle caused by the diseased vertebral bodies does not encroach upon the spinal canal. In discussing the application of this operation, one must never lose sight of the fact that the pressure-symptoms are almost certainly due to inflammatory thickenings in and about the membranes of the cord, and to purulent extravasations, rather than to bone. It is a very interesting fact, moreover, to which attention has not hitherto, I think, been pointedly directed, that paraplegia is rarely met with in those cases which are associated with definite spinal abscesses. The explanation of this may be that when pus finds a ready escape by the side of the spine, it is not shut up under pressure in the region of ulceration.

My own experience in connection with the clearing up of pressure-symptoms under the influence of complete rest in the extended posture is so much in accord with that of Mr. Tubby, that I have particular pleasure in here directing attention to his article.

Of course, I am far from saying that there are no cases of paraplegia due to caries of the spine for which improvement should be sought by laminectomy. Such a statement, indeed, would savour strongly of ignorance and obstruction. But what I would like to do is to urge that we be not too ready to leave the beaten track of experience and conservatism for the enticing regions of speculative activity.

Prof. Watson Cheyne, in referring to this subject, remarks, in accordance with what is usually accepted, that the paralysis is hardly ever due to the pressure of the bone on the cord, for, owing to the destruction of the bodies, the canal is shortened, and there is no stretching of the cord nor want of room so long as no adventitious material is present; it is possible, however, that if the curve is very acute, the cord may become kinked, and its circulation and function thus interfered with. The chief factors being, then, the weight of the body and the muscular contraction, the first indication of treatment in a case of paralysis is to remove these factors. This is best done by complete recumbency to take off the weight



Fig. 2.—Gentle extension in paraplegia.

(From Prof. Cheyne's Lectures at the Royal College of Surgeons.)

of the upper part of the body, and extension to the head and feet to overcome the muscular contraction (Fig. 2). This should certainly be tried in all cases before proceeding to laminectomy, which is too much the fashion nowadays.

Attention may further be directed to a report by Mr. C. M. Moullin (*Brit. Med. Journal*, Sept. 10, 1892), which has an important bearing on the question in hand. A child of 10 years was admitted to hospital Nov. 19, 1891. Three months before, she had been struck upon the back in the lower cervical region. Seven weeks before admission difficulty in walking was noticed, and for

a month she had been unable to stand. There was an angular curvature in the cervico-dorsal region. The lower limbs were rigid; sensation was lost over the feet and legs; the knee-jerks were exaggerated, but control over the sphincters was still retained. In the course of the next month, in spite of absolute recumbency being maintained, the condition grew worse and worse; the curvature became more marked, the bowels grew inactive, the sphincters entirely lost their power, all control over the lower limbs below the hips disappeared, and the muscular wasting became very apparent. The knee-jerks were exaggerated, and there was extreme ankle-clonus. She complained of pain in the neck on taking a deep breath. Respiration became diaphragmatic. About this time (the beginning of January) the question of laminectomy began to be considered, as it was evident the pressure upon the cord was rapidly growing worse, and there was imminent danger of respiratory trouble setting in; but on January 15 distinct improvement in sensibility was noticed, the breathing became clear a few days later, and by January 29 sensibility was practically normal all over the body, and power began to return in the sphincters. The legs remained rigid for another month. By the end of February the toes could be moved, and by the end of April all movements of the lower limbs were perfectly free while the patient was lying in bed.

She was discharged on June 20 wearing a poroplastic felt splint with a jury mast, able to stand alone, but not to walk without some support. The only local treatment employed was absolute recumbency from the first, between sand bags; and, later, slight extension from the head (the bed being inclined) by means of a leather collar under the chin and occiput, but this was not commenced until January 27, after a certain degree of improvement had begun to manifest itself.

2. The treatment of post-pharyngeal abscess.

The treatment of post-pharyngeal abscess, the result of tubercular disease of the cervical vertebræ, is the subject of a practical essay in the *Centralblatt für Chirurgie* (March 26, 1892) by Dr. W. Kramer, who remarks that while some surgeons are still of opinion that the better mode of treating these abscesses is by way of the mouth, the best results are to be looked for after their being attacked from the side of the neck.

He refers to the two great risks of the older method of treatment, the one being the risk of the abscess cavity becoming septic, the other of infective tubercular material being carried down into the lungs. He insists, and rightly so, upon the propriety of opening up all such abscesses from the side of the neck, which can, as a rule, be

accomplished easily enough by working along the anterior border of the sterno-mastoid, and proceeding somewhat after the method of Hilton. The cavity is then to be emptied, and irrigated with a weak sublimate lotion, then scraped with a spoon; again washed and dried, and then stuffed with iodoform gauze. The well-informed practitioner will find nothing new in all this. But, on the other hand, the apprehension may be expressed that, either from want of knowledge or from want of energy on the part of the surgeon, not a few cases of post-pharyngeal abscess are allowed to drift along the perilous road of oral evacuation.

Clinical remarks upon the treatment of cervical caries may also be found in the *Medical Week* of December 2, 1892.

3. Rest and recovery in joint disease.

A. J. Steele, M.D. (*Trans. Amer. Orthop. Assos.*, Sept., 1891), in an interesting survey of the work of the late Hugh Owen Thomas, writes as follows:—

“Motion was his nightmare, so the principle of ‘surgical rest to diseased joints’ was strongly enunciated by him. By it he meant thorough immobilisation or fixing of the joint, removal of concussion—such as the lower limbs experience in walking—and avoidance of circular compression. Such compression, he indicates, would curtail the blood supply and interfere with the physiological well-being of the articulation. He did not claim this idea of rest to be either original or new, giving Hilton and Brodie due credit for enunciating it, but he believed there was occasion for strongly reiterating it, as American surgeons were, twenty years ago, claiming that motion, *per se*, was not only harmless, but even beneficial—that traction of the limb meanwhile relieved contact and prevented friction.”

The remark that American surgeons contended for movement of an inflamed joint a few years ago is true enough. But there are still surgeons, not only in America, but in Great Britain also, who fail to recognise the full therapeutic value of absolute rest. Thomas’s splint for disease of the hip-joint is steadily making its way. Its progress in America, however, was long retarded by the prestige attaching to Sayre’s apparatus, which embodied all those principles to which Thomas and his disciples were most opposed.

Dr. Steele continues:—

“To know when a joint is sufficiently recovered to allow motion and use—that is to say, when cured—were an important question, which Mr. Thomas solves with the suggestion that disappearance of the symptoms of the disease indicates that treatment may be discontinued; and recovery is assured when, after use, the patient can extend the limb to the position acquired while in

the splint, *i.e.*, ability to place the limb in the position it was maintained at during treatment. This is a valuable suggestion, for many a joint has been sacrificed after judicious treatment by unwittingly being allowed use too soon."

It was with especial interest that we turned up the subject of **hip-joint disease** in "An American Text-Book of Surgery" (Aug., 1892)—a volume of 1,200 large pages by thirteen American practitioners whose names are, for the most part, well known and respected in Europe. The volume, to which reference has already been made in this article, appears under the able editorship of **Professors William White and William Keen**, of Philadelphia.

As with us, so in America, "In the first stage the disease is very apt to be overlooked or misunderstood for a considerable time, because of the doubtful or slight character of the symptoms." The statement that actual luxation rarely occurs is in accordance with our own experience. Rest, traction, and fixation are given as the points to be aimed at in treatment.

There is, happily, not even a reference to "fixation and movement," or to Sayre's splint. But, strange to say, there is no actual mention of the name of Thomas—a man who, by persistent hammering, has moulded both British and American views greatly in accordance with his own.

As regards the knee-joint, the term "white swelling," used in this new text-book, is always understood to mean "tubercular disease." There is in this no beating about the bush, no juggling with that blessed word "strumous." No, these chronic swellings of the knee in children are "always tubercular." Fortunately the word "tubercular" has been deprived of much of its evil omen by the application of the knowledge acquired by the patient work of the chemist, the physiologist, and the pathologist, and by the rank and file of practical physicians and surgeons.

In connection with the treatment of tubercular joint-disease, **Mr. Watson Cheyne**, in the lectures to which we have just alluded, questions the propriety of allowing children to get about on the ordinary raised patten. In such cases he believes that it is better that the patient should remain recumbent, be wheeled out into the open air, and that exercise be supplied in the form of general massage. This can be readily managed even by those not very well off, for a relative or attendant can now acquire, for a small fee, a sufficient knowledge of massage to enable him to do what is necessary.

4. Tubercular disease of the elbow-joint has generally proved a tedious disease for treatment on the old plan of rest and always rest in some rectangular retentive apparatus. On Feb. 22,

1892, **Mr. Clutton** remarked at a meeting of the Medical Society of London that during the year 1888 four cases of tuberculous disease of the elbow-joint were submitted to arthrectomy at the Victoria Hospital for Children, three of which were shown. The result, when last seen, was the same in the absent case. The operation consisted in opening the joint by dividing the olecranon, and removing all the diseased structures with a sharp spoon and scissors. The parts were reunited and kept absolutely at rest. No passive movement was at any time done, and a plaster-of-Paris splint was continued for three or four months. What movement was present was accomplished entirely by the patients themselves. The result was seen to be only a little short of the normal range. He pointed out that if the cartilages at the time of operation were firmly fixed to the bone beneath, and the wound kept aseptic, the joint would not ankylose, even if it were kept at rest for some months. On the other hand, if the cartilages were detached and a movable articulation was required, the ends of the bones must be removed as in the ordinary excision of joint.

The reviewer has, moreover, seen and examined some excellent results of partial operations on tubercular elbows which had been performed by his colleague, **Mr. Bernard Pitts**.

In his lectures delivered at the Royal College of Surgeons (June, 1892), **Mr. Watson Cheyne** pointed out that in the human body the tubercle bacillus has often a hard struggle for existence, and that frequently very little is required to turn the scale in favour of recovery. In some excellent suggestions as regards the treatment of tubercular disease by climate, he alludes to "the remarkable pilgrimage to Margate, which seems to be the first and most essential part of the treatment of surgical tuberculoses—a pilgrimage undertaken without the slightest consideration as to whether that is the climate which suits the patient best. Indeed, I have known patients persist in staying at the East Coast health-resorts although they were never well there, under the idea that, though their bodily health was suffering, their tuberculous disease was being cured by the specific substances (iodine, ozone, or what not) present in the air. This is, I am satisfied, an erroneous and hurtful view, and I agree with what I think is the view taken by the great majority of the authorities on climate—namely, that its efficacy depends solely on its action in re-establishing the vigour of the body and enabling it to oppose successfully the tuberculous invasion. From this point of view there is no one place suitable for all cases, and the decision must depend on the peculiarities of the patient and the situation and stage of the disease."

"Where a patient is unable to walk, the place chosen must be

warm, dry, and sheltered from winds, because he ought to be out in the open air as far as possible all day, and naturally this would be impossible in a cold, windy, damp place. Many patients undoubtedly do best at the seaside; but there are others, and these are by no means few, for whom somewhat high inland places are the most suitable." (See also article on "General Surgery," p. 209.)

In connection with the subject of tubercular disease, reference may be made to an article by Dr. A. F. Suchard (*Rev. Méd. de la Suisse Rom.*, 1891, p. 699), in which he expresses his dissatisfaction with the modern method of dealing with tubercular glands. He says that, however able the surgeon may be who excises the enlarged glands, his success is by no means such as he fondly imagines it to be, and that more glands than he has removed spring up in due course in the neighbourhood of the scar. He has various theories to advance in explanation of this failure, the sum of which is that the bacilli have evaded the search of the operating surgeon.

Dr. Suchard turns with satisfaction, however, to the child of the Valais peasant with both sides of his neck, from jaw to collar-bone, occupied with suppurating masses of glands which are discharging from a quantity of openings. He prefers "Nature's mode of elimination," and would allow her handmaids "the rain, the sun, and the wind" to deal with the bacillary invasion. He admits that the scars left after the recovery are ugly, but he thinks that he can diminish this unsightliness by attacking the glands by setons, injections, and by electrolysis. Dr. Suchard believes that in this last means of treatment—which he claims as a "new procedure"—he is imitating Nature. We would venture to submit, however, that in the usually adopted treatment of suppurating tubercular glands, Art has left Nature far behind, and that the "new procedure" is, after all, a distinct retrogression.

5. Acute septic diaphysitis.

At a meeting of the Medical Society held March 21, 1892, Mr. Edmund Owen showed a female infant of 9 months, who in the previous January had been admitted to the Children's Hospital with acute sub-deltoid abscess. The infant looked extremely ill; axillary temperature 101° ; pulse rapid and feeble. Under chloroform, the movements of the shoulder-joint were free; the humerus was thickened just below the tuberosities. The diagnosis made was acute septic inflammation—probably with necrosis—at the diaphysial aspect of the junction cartilage. On an incision being made down to the bone an abscess was evacuated, and a small opening was found leading into the humerus at the surgical neck.

This opening was enlarged, two small sequestra were extracted, and a good deal of granulation tissue was scraped out of the expanded shell of bone. During this operation the epiphysis became detached. The cavity was washed out with a chloride of zinc solution and temporarily drained, the upper part of the incision being closed with sutures. The hand was then fixed across the opposite side of the chest, and the arm was secured in dry dressings and a bandage, as if for separation of the epiphysis. The infant's temperature quickly dropped; the wound closed; the epiphysis once more became attached to the shaft, and the child has recovered with movable joint and a sound limb. Mr. Owen was of opinion that this case had been on the verge of becoming one of those which were described as acute arthritis of infants, and though he could not adopt the term as a separate pathological entity, he was well aware that arthritis did often follow the epiphysitis. He was in favour of early exploration of the bone in all such cases.

III.—STONE.

Litholapaxy in children.

D. F. Keegan, F.R.C.S. (*Indian Med. Gazette*, July, 1892). In an analysis of 500 cases of litholapaxy, Brigade-Surgeon Keegan says that "214 litholapaxies were performed on patients varying in age from below 2 years to 14 years, with a mortality of seven, or a death-rate of 3·27 per cent. These 214 litholapaxies include seven successful operations performed on young girls. On the whole, I think, we have good reason to congratulate ourselves that we have been able to practise litholapaxy in boys with a mortality not exceeding 3·38 per cent., considering that five out of the seven fatal results were due to our having to deal with young patients the subjects of extensive organic disease of the kidneys. My personal opinion on the relative advantages of litholapaxy in boys, as contrasted with lateral lithotomy and suprapubic cystotomy in these young patients, is now well known to the readers of this *Gazette*. I have not jumped hastily to conclusions. Litholapaxy in boys has now been on its trial for more than ten years. It was begun very tentatively at first, and as years went by, and we had gained more practical experience of the operation, its scope was cautiously increased. And now, after the lapse of these years, I have no hesitation in stating that it is far and away the best operation for the vast majority of the calculi the surgeon meets with." In conclusion, he warned the inexperienced against the fatal economy of buying cheap and therefore badly made and

untrustworthy lithotrites. "There are plenty of such instruments in the market, and they may prove, even in skilled hands, most dangerous weapons of destruction."

IV.—FÆCAL FISTULÆ.

Fæcal fistulæ cured by operation.

F. J. Shepherd, M.D. (*Montreal Med. Chirurg. Soc.*, Nov. 20, 1891), described the case of an infant, 3 months, who came under his care with umbilical fistula. Flatus had first escaped on the separation of the umbilical cord.

Operation for radical cure having been determined on, the patient was put under chloroform on September 19. An incision was first made through the protrusion, near to its exit from the abdomen. This incision revealed the fact that it was not mucous membrane, but skin deprived of epithelium; for, on cutting it through, the peritoneal cavity was entered and a portion of bowel seen to be protruding through an opening at the umbilicus; this bowel, by its open extremity, was continuous with the fistula already described. It was now determined to enlarge the incision by opening up the abdominal cavity above the umbilicus, and to examine further. This was done, and the protruded portion of the bowel was drawn out and found to be a diverticulum from the small intestines. The diverticulum was cut off close to where it was given off from the gut, and the opening thus left sutured by a double row of continuous silk sutures, the outer row of which included only the peritoneal coat of the bowel. The sutured bowel, after having been found perfectly water-tight, was dropped back into the abdomen, the stump of the cord cut off and the abdominal wound closed. The infant made a complete recovery.

At the Nottingham Med. Chirurg. Soc., May 18, 1892, Mr. A. R. Anderson, F.R.C.S., showed a boy, 8 years, on whom he had recently operated for fæcal fistula. For some time before his first admission his mother noticed that his abdomen was swollen and that he was losing flesh. His bowels were regular; there was no history of tuberculosis. A swelling was occupying the right umbilical and inguinal regions. It was painful. The protrusion at the umbilicus burst, discharging fæculent pus. There was a fæcal fistula at the umbilicus. The skin round the opening was reddened, and scattered round it were warty and fleshy growths. An irregular swelling caused by the matting together of the intestines could be felt in the vicinity of the opening. On April 8, the skin having been thoroughly cleansed and the opening

stuffed with wool, an incision was made, commencing about $1\frac{1}{2}$ in. above the fistula and extending the same distance below it. The peritoneum was opened, and the central portion of the skin and abdominal wall, which was enclosed in the incision, was separated all round. Numerous old and firm adhesions were found binding the neighbouring coils together as well as to the parietal peritoneum. The opening, which was the size of a threepenny piece, was in the cæcum. The appendix was normal. The external opening, the skin, the portion of the abdominal wall included in the incision, and the track were then cut off, and the hole in the cæcum closed with Lembert's sutures. After the operation the boy had been fed by means of nutrient enemata. The next day food was given by the mouth. A week after the operation the wound was healed. Since the operation he has gained flesh considerably, and is now in good health.

Fæcal fistula in children is not of infrequent occurrence, but it is a very intractable condition. The commonest causes of the lesion are tubercular peritonitis, and injury to a loop of intestine, or to a Meckel's diverticulum by the ligature applied to the umbilical cord. In the instances which I have hitherto met with, I have, I think, erred upon the side of over-caution, and this notwithstanding my acquaintance with the particulars of a case of great clinical value and importance, which was published by Mr. Makins in the *St. Thomas's Hospital Reports*, some few years ago. Conservative or simple measures should first be tried, though, as I am fully prepared to admit, they are often tedious and disappointing. But on their failure the right thing is (the child being in fair health) to adopt the line of treatment briefly described in the two cases which are recorded herewith.

V.—UNUNITED FRACTURE.

Ununited fracture of the long bones in children.

D'Arcy Power, F.R.C.S. (*Med. Chirurg. Soc.*, Dec. 8, 1891). The author introduced his paper by a short account of the work already done in this field. He showed that no one has yet been at the trouble to tabulate the various cases of ununited fracture which have been at different times recorded in medical literature. He believed that until the publication of the very valuable paper upon this subject by Sir James Paget in his "Studies of Old Case-books," the occurrence of non-union in children had been almost wholly neglected. The conclusions arrived at by Sir James Paget are entirely borne out by the table which Mr. Power has collected. From a consideration of this

table it appears that cases of ununited fracture in children group themselves into three classes, the first in which the fracture is intra-uterine, the second in young children, often as the result of very slight violence, and a third class embracing the greater number of the cases which occurred in older children and in the usual manner.

Of the sixty-three cases, five were in the clavicle, nine in the humerus, eleven in the femur, and thirty-eight in the leg. It is very remarkable that the author has not met with any recorded case of ununited fracture in the forearm, although numerically the statistics of fractures show that the radius and ulna are more frequently broken than any other in a child's body. As regards the sex, non-union occurred in twenty-five males, and in thirty-five females; in three cases the sex is not mentioned.

So few observers have noted the side upon which the bone was broken that the table is worthless to settle this point, but there seems to be a general impression that non-union is much more frequent upon the left than upon the right side. At any rate the point is worth noting for future observation. The results of the treatment of non-union are most unsatisfactory. Out of the sixty-three cases bony union was obtained in six cases, in seven the patient was relieved, but in thirty-six cases the patient remained *in statu quo ante*.

The author believed that ununited fractures are becoming more frequent than they formerly were, and he endeavours to account for this fact. He also points out how extremely rare non-union is in France—not in children only, but in adults of both sexes.

The reading of this paper was followed by a full discussion, but no definite explanation of the unsatisfactory results which such cases yield to operative treatment was forthcoming. One of the speakers exhibited to the meeting two children with ununited fracture of the tibia and fibula which he had submitted to operation, in each case with complete failure.

VI.—HERNIA.

A paper was recently read at the New York Academy of Medicine by Dr. Milliken on the *treatment of hernia by the worsted skein*—a simple measure to which attention may be more generally directed. The accompanying wood-cuts explain how the skein is arranged. Its use was first suggested by the late Mr. Coates of Salisbury. The danger of producing excoriation with ordinary

trusses sometimes makes the treatment of hernia in young children exceedingly difficult.

The apparatus is composed of a loop of worsted containing twenty-five or thirty strands. This is made sufficiently long that it may encircle the pelvis between the anterior superior spinous processes and the great trochanters, and have enough to make a perineal strap. On one end a double tape is attached, which corresponds to the affected side of the patient, and should be passed through the loop coming from the opposite side. (Fig. 3.)

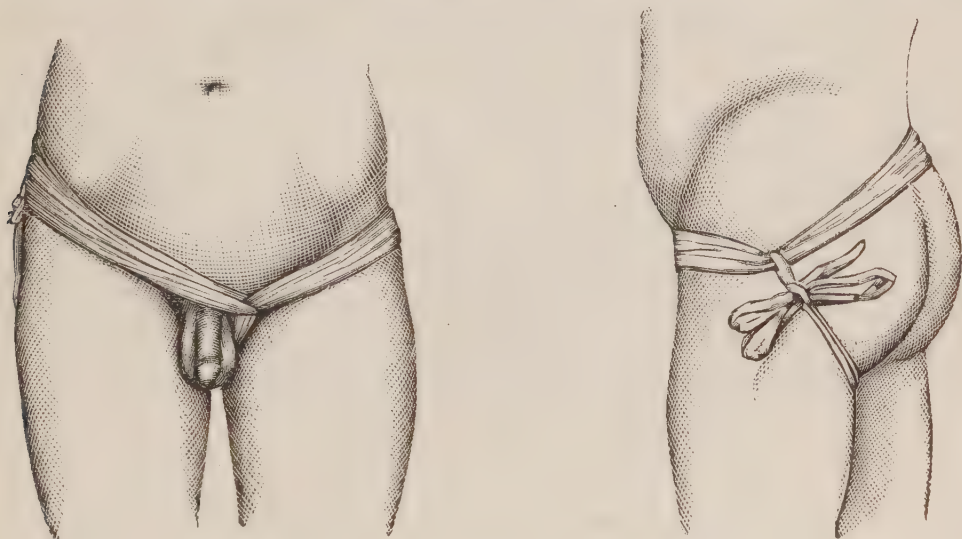


Fig. 3.—Worsted-skein trusses.

“With the index finger of the left hand, passed through the loop and allowed to rest perpendicularly on the median line of the abdomen, ordinary tension is made. The tape end is now passed through the loop, and the additional force necessary to bring the point of crossing to the inguinal region will usually give sufficient support to retain the hernia. The free or tape end is carried under the thigh of the affected side, and tied to the band going around the pelvis. Where a double hernia exists, the second band is applied irrespective of the first.

“Since January, 1890, there have been treated by means of the hank truss, at the Hospital for Ruptured and Crippled, the New York Polyclinic, and in private practice, 267 cases of hernia, ranging from 2 weeks to 4 years of age. Of this number there were: right oblique inguinal hernia, 162; left oblique inguinal hernia, 71; double oblique inguinal hernia, 34. Two hundred and forty cases were males; 27 were females. The one femoral hernia was in a boy of 17 months. Only one case of recurrence

has come to my notice after 'cure' with the hank truss. This was only on one side, where a double hernia had formerly existed."

Some time since **Mr. Langton** remarked to the reviewer that he saw at the City of London Truss Society a considerable number of ruptured children for whom the hank truss had been unsuccessfully used. The rejoinder made was that this truss was not competent to cure every case for which it was tried, and that, naturally enough, a good many of the failures found their way to Finsbury Square. Still, the reviewer has every reason to speak well of it, and would advise an intelligent and patient trial being made of it in every case of a delicate infant with hernia.

In connection with the subject of hernia in childhood, the reviewer would very much like to know what is **Mr. Langton's** experience with the so-called "radical cures" that have been so widely practised of late; how many children on whom he (the reviewer) has performed the open operation, for instance, have been afterwards brought to the Truss Society for treatment by trusses; and whether **Mr. Langton's** experience of the various radical operations is in complete accordance with the views, figures, and remarks published by the respective surgeons.

DISEASES OF THE GENITO-URINARY SYSTEM.

BY REGINALD HARRISON, F.R.C.S.,

Surgeon to St. Peter's Hospital, London.

1. Urinary fever.

During the year some important practical work has been done in connection with this subject. At the French Surgical Congress (April, 1892) an admirable paper was presented by Dr. Noël Halle ("The Pathology of Urinary Infection": *Annales des Maladies des Org. Gén.-Urin.*, Paris, Feb., 1892). Those who are acquainted with the Necker Hospital are probably aware that in connection with Professor F. Guyon's wards for genito-urinary diseases, there have been recently erected some excellent laboratories where pathological and bacteriological investigations go on concurrently with clinical work. Dr. Halle's paper is an outcome of this. Without going into details, which would occupy too much space and can only be studied properly in his communication, two points are made very clear:—(1) That urinary fever is directly connected with bacterial production and infection; and (2) that nearly every old man, as well as some younger ones—at all events, the majority of persons who have large prostates and cannot empty their bladders completely—carry about with them one of the most admirable media that the chemist can provide, so far as composition and temperature are concerned, for the cultivation and propagation of bacteria. Consequently, it is not surprising that such persons, on even what we might regard as slight provocation (for instance, the little friction occasioned by the passage of an apparently clean catheter), develop symptoms which have recently been referred to with much force as well as truth by a name directly connecting them with the use of this instrument.

I was permitted to follow with a paper in which I endeavoured to show from surgical practice ("On some Forms of Acute Urine Fever," *Lancet*, May 21, 1892) the kinds of wound that were most liable thus to act as means for infecting, and so, as it were, to carry the discussion one stage further. These observations

were for the most part drawn from a series of cases of internal urethrotomy where urine drainage was also provided for by means of a perineal puncture and the introduction of a drainage-tube into the bladder. In twenty-three consecutive cases where the double proceeding was thus practised, neither rigors nor fever were observed, the elevations of temperature, which were rarely noted, being such as are met with in the simplest forms of surgical practice. From these, as well as other facts that were recorded, it was concluded (1) that the occurrence of a distinctive variety of acute urine fever following wounds of the urinary apparatus is largely determined by defective urine drainage, and (2) that the fever following these lesions is toxic, and not, as some allege, neurotic.

The practical outcome of all this is, that there is plenty of room for the further employment of the true principles of antiseptics in connection with all urinary operations, especially those on the urethra, where the conditions necessary for bacteria culture are so often present. The careful antiseptics is indicated of all instruments required in these purposes, particularly catheters and mechanisms having hinges, grooves, or joints in them; the preparation of the passages themselves by the sterilisation of the urine with such drugs as quinine, boracic acid, salol, and others, which seem to possess this property, as well as by more direct means by the topical use of antiseptics, of which the perchloride of mercury is probably still the best. The thorough drainage of urine and pus is perhaps the most important factor in connection with the mechanism of what is so generally known as the antiseptic system.

2. Lithotripsy.

Some contributions have appeared during the year relating to the mechanism of this operation, to which reference will first be made. Dr. G. Chismore (*Journ. of Cut. and Gen.-Urin. Diseases*, Oct., 1892. New York) describes a combined crushing and evacuating lithotrite, and illustrates its use by ten cases. Though fitted with a screw-power, which works from the side of the instrument, the author observes:—"In practice I found by far the most of the crushing is easily and quickly done without the use of the screw-power, by holding the female blade firmly with the left hand and forcing the male blade home with the right. To avoid blistering the palm of the hand during the process, I have had constructed a light, hard rubber cap fitted to the nozzle of the male blade, which is easily adjusted and can readily be removed. By means of the stop-cock and wash-bottle (connected with the lithotrite) the fluid in the bladder may be increased, diminished, or changed with the greatest ease. Indeed, several times during an

operation it is well to open the stop-cock and empty the bladder. If any air has entered it, it escapes with the water. If more cocain (which appears to be the anæsthetic usually employed) is needed, it is injected through the lithotrite before a fresh supply of the aspirating fluid is thrown in." The paper contains illustrations of the apparatus used. The average weight of the fragments removed in the ten operations detailed amounted to nearly 100 grains, and included phosphate, urate, and oxalate stones. This compound instrument, though possessing some advantage in principle, is clearly limited in its application to small stones, as it is open to the serious objection that in its construction a sacrifice of strength is necessarily involved. No greater misfortune could happen to a surgeon than anything going wrong with his instrument in an operation of this kind. The author appears to have some misgivings on this head, as the paper, which is an outcome of a considerable experience in stone operations, closes with a paragraph hinting that the surgeon may possibly have to come to the assistance of his lithotrite by a suprapubic cystotomy.

In the discussion that followed the reading of this paper, two advantages were put forward in connection with the use of this instrument :—(1) That the movements of the aspirating fluid in the bladder could be so regulated, by the movable wash-bottle, towards the jaws of the lithotrite as to favour the seizure of small fragments, and particularly the last fragment ; and (2) that as the instrument combined the mechanisms necessary both for crushing and evacuating, the urethra was not subjected to such frequent instrumentation during the course of an operation as is often the case when the ordinary appliances are used. Recognising the importance of these points—particularly in those instances where the bladder is pouched, or the access to it is rendered somewhat more difficult by that frequent complication of stone in elderly persons, viz., an obstructing prostate—I recently drew attention to some details which I had observed in M. Guyon's practice at the Necker Hospital and tested in my own work, and which are referred to in the following paragraph.

3. On the evacuation of débris after lithotrity.

Mr. Reginald Harrison (*Lancet*, July 2, 1892). There can be no doubt that the shortcomings of lithotrity are chiefly connected with the difficulty existing of guaranteeing that every fragment is removed and that nothing is left behind which is capable of furnishing the starting-point for another concretion. Of all the conditions favourable to the reproduction of stone, this is probably the most fertile one, and all proposals tending to diminish the liability in this direction are deserving of careful consideration.

M. Guyon's practice, as I have frequently observed it, is as follows:—The patient being fully anæsthetised, the fenestrated lithotrite is introduced, and the stone is not merely broken up, but absolutely pulverised. In the last case I saw, a urate-phosphate stone with a diameter which only just brought it within the grasp of the largest lithotrite was subjected to a process of trituration that lasted for twenty-five minutes by my watch, without, I believe—as far as I can remember—a single withdrawal of the instrument. When no fragments could be felt with the lithotrite the evacuating catheter was introduced. The latter consisted of a full-sized instrument with a large eye on either side of the beak. No aspirator was attached to it such as we are in the habit of using for withdrawing fragments by suction-power, but after the bladder had been allowed to empty itself spontaneously of its contents by the catheter, an ordinary syringe was attached to the latter, and about 6 ounces of warm boracic lotion were gently injected. Then the syringe was disconnected and the bladder allowed to empty itself, this process being continued until the contents of the syringe were returned absolutely pure. The bladder was finally washed out with a solution of nitrate of silver (1 per 1,000); and a rubber drainage catheter was passed and retained for twenty-four hours. The operation was completed in forty minutes, and considerably over an ounce of stone powder was withdrawn suspended in boracic lotion. The total amount of blood was little more than sufficient to colour the water, and entirely disappeared before the syringing was completed. I examined the *débris* after it had all been collected. In its moist state it had the appearance and feel of soft homogeneous mud. There were no appreciable fragments of stone in it.

The following were the points noticeable in this and similar procedures, as elsewhere observed. (1) The use of the lithotrite to produce this effect was necessarily more prolonged than where mere fragmentation is the object:—This, with the patient under an anæsthetic, is a matter of no importance so long as the lithotrite is carefully used. (2) The less frequent introduction of lithotrites and evacuating catheters along the urethra. This is a point of some little importance where the prostate is large and the deep urethra irregular. (3) The back action of the suction apparatus, by means of which fragments of stone often become impacted in the saccules and lacunæ found in bladders complicated with enlarged and irregular prostates, is done away with. The force of a syringe so used is probably less than that of the back action of a strong rubber bag compressed by the hand. Further, impalpable wet powder is substituted for irregular fragments of stone. The

latter by their nature are not only more liable to become impacted in depressions within the bladder wall, but by their movements under the force of the aspirator to wound the mucous membrane, as illustrated particularly by Surgeon-Major Keith in the paper referred to. (4) With the catheter there is no chance of fragments once withdrawn being washed back by any return current into the bladder. No aspirator that I have yet seen is free from this objection. It is only right to add that my communication was prompted by the perusal of an excellent practical article on this and kindred subjects by Surgeon-Major Forbes Keith (*Lancet*, June 11, 1892), which is deserving of careful consideration.

4. Perineal lithotrity.

Surgeon-Major J. Forbes Keith (*Lancet*, June 11, 1892) advocates the revival of perineal lithotrity, and describes his method of procedure and the instruments employed. From his work in India he records an experience of this particular operation of seventy-six cases, with two deaths. There is much to be said in favour of this procedure, particularly in those cases, so far as my experience goes, where stone is complicated with a pouched or badly-shaped bladder and an obstructing prostate. It is in these circumstances that recurrence of stone so frequently takes place after lithotrity, even in the hands of the most accomplished operators. Referring to this operation, Dr. Gouley, of New York, writes in 1873 ("Diseases of the Urinary Organs." Wood: New York):—"The name of perineal lithotrity was given in 1862 by Professor Dolbeau, of Paris, to an operation completed in one sitting, by which the membranous portion of the urethra is opened, the prostate and neck of the bladder dilated instead of being cut, and a large stone crushed, and the fragments immediately extracted." This paragraph is of much interest, as it is almost suggestive of what Bigelow accomplished some years afterwards without incision. Dr. Forbes Keith enters the bladder through a median perineal urethrotomy. If care is taken to make the perineal wound correspond in size with the evacuating catheters, there is no difficulty in keeping the bladder distended with fluid during the necessary manipulations. For breaking the stone a specially-made lithotrite of considerable power—and with a longer screw than usual, so that it may deal with larger stones—is used. These lithotrites have been made for Dr. Keith by Messrs. Coxeter and Son.

It is now some years since I advocated perineal lithotrity in certain conditions, to which reference has been made (*Trans. Congress of American Physicians and Surgeons, Washington, 1881*). I have selected it in twelve instances, and have so far had no deaths or recurrences of stone following it. The chief points in its favour

are these :—(1) It enables the operator to crush and evacuate large stones in a short space of time. (2) It is attended with a very small risk to life as compared with other operations where any cutting is done, such as lateral or suprapubic lithotomy. In his recent address, **Mr. Swinford Edwards** ("Urinary Surgery," *Medical Press*, Oct. 12, 1892) shows that the latter operation for large stones has a mortality somewhere about 50 per cent. (3) It permits the operator to wash out the bladder and any pouches connected with it more effectually than by the urethra, as the route is shorter and the evacuating catheters employed are of much larger calibre. (4) The surgeon can usually ascertain either by exploration with the finger or by the introduction of forceps into the bladder that the viscus is cleared of all *débris*. (5) It enables the surgeon to deal with certain forms of prostatic outgrowth and obstruction in such a way as to secure not only the removal of the stone, but the restoration of the function of micturition. (6) By the subsequent introduction and temporary retention of a soft rubber drainage-tube, states of cystitis due to the retention of urine in pouches and depressions in the bladder wall are either entirely cured or are permanently improved. To lock up unhealthy ammoniacal urine in a bladder that cannot properly empty itself after a lithotomy, is to court the formation or recurrence of a phosphatic stone.

Though I can endorse much that Dr. Keith states in favour of this operation from a gradually increasing experience of it, I must express my preference for crushing forceps as against what he describes as a perineal lithotrite. It is now some years since Messrs. Krohne and Sesemann made me variously-shaped bladder-stone forceps with a cutting rib within the centre of the blades, which can be easily passed into this viscus through a perineal wound admitting an ordinary index finger. With these instruments I have in a few minutes reduced to fragments large calculi, including oxalates and urates, and rapidly effected their removal in the way described. Since the adoption of perineal lithotomy as a complement of Bigelow's method I have had no occasion to resort to lateral lithotomy, and only in one instance to suprapubic cystotomy. In the latter case the selection was due rather to the state of the prostate and the entrance to the bladder than to the size or the hardness of the stone. The operation was successful—a result that would have been improbable had crushing been proceeded with. In cases on the border line of lithotomy, I believe perineal lithotomy secures all the advantages of the former operation, so far as rarity of recurrence of stone after removal is concerned, and, at the same time, the safety that is so rightly claimed for ordinary lithotomy.

or litholapaxy as usually practised in all varieties of stone of moderate size both in children and adults.

5. Sounding for stone.

Reference to some of the many interesting cases of stone that have recently been recorded in the public prints, leads me to the belief that in the majority of instances it would be better practice to sound and remove the stone at the same time. The abandonment of a preliminary tapping has, I believe, considerably reduced the mortality in connection with ovariotomy. In persons with fairly normal bladders the gentle movement of the stone with the sound is a matter of little consequence; but with stones more or less fixed in one position—as is so often the case where the prostate is large and the bladder pouched—the conditions and risks are very different: urine gets into the depression the stone has so well filled, some cystitis is set up, there is an unnecessary delay, which is trying to the nerves and the sensations of the patient, the sleep is disturbed, and the surgeon finds himself almost obliged to operate (most probably by crushing) with a bladder, as well, perhaps, as the dilated parts above, thoroughly infected with some of the worst specimens of bacteria. In a personal experience of lithotripsy now amounting to over 200 cases, I have noted that not a few of the most rapid recoveries followed when sounding and removal were concurrent, and, on the other hand, that some instances of failure were evidently connected more with the means used to discover the stone than those employed to effect its removal. One anæsthetic covers the whole procedure, and the patient is spared a needless suspense.

6. Prostatic hypertrophy and obstruction.

Several papers and cases illustrating the treatment of prostatic obstruction in its more advanced forms have been published during the past year. In some the enlargement has been removed through a supra-pubic incision, whilst in others the perineal route, on the ground largely of greater safety, has been selected. The position of matters, as referred to in previous notices in this work, has not materially altered. It is only when the use of the catheter ceases to give adequate relief that such proceedings can be entertained.

Mr. Bruce Clarke illustrated the practice of Bottini's operation on the enlarged prostate with the galvano-cautery by four cases (*Trans. Medical Society*, 1892), and elicited opinions from Mr. Hurry Fenwick, Mr. Swinford Edwards, Mr. Buckston Browne, and other surgeons, some of whom had also performed this operation. The object of the proceeding is to establish an eschar at the point of obstruction, and to allow the slough thus formed to come

away gradually with the urine. Mr. Clarke concludes with the sentence: "Three out of the four cases now pass the whole of their urine without catheter, and experience no difficulty whatever in its passage, whilst the fourth, which was the most severe case of them all, is so far improved that he can urinate when standing up, which he had been unable to accomplish for some year and more, as well as having much less residual urine in his bladder than was formerly the case." Mr. Clarke's cases were all operated on during 1891. In looking over the general experience of this method of treatment I can only repeat what I have stated elsewhere, that it lacks the assurance of that precision in the application and use of the cautery which is essential for success. I have had occasion to use a cautery of this kind to the prostate, with great advantage, in the treatment of tubercular deposit; but precision in its application was secured by a preliminary perineal opening.

7. Suprapubic prostatectomy.

As suprapubic prostatectomy is likely to have a permanent place in the surgery of the urinary organs, I refer to what appears to be a useful way of arresting the hæmorrhage which sometimes follows it.

Dr. Keyes (*New York Medical Record*, Sept. 17, 1892) describes and pictures a form of tampon or graduated compress made of bi-chloride gauze, which he uses in the following ways:—"In the first of my cases I passed a soft bulbous olivary French catheter through the urethra into the bladder and out by the suprapubic wound, and tied my double silk upon the end of it, and with the silk making traction along the line of the urethra, drew the tampon powerfully down into the funnel-shaped excavation of the prostate and tied the double ligature over a piece of soft gauze at the urinary meatus upon the relaxed penis. In the second instance (because the patient also had deep urethral stricture) I made a perineal urethrotomy, and by direct traction through the perineal incision upon my tampon, drew it firmly into place and tied the strings over a gauze perineal pad." **Dr. Cabot**, of Boston, also writes as to the value of the appliance in a case where he removed "a tumour as large as a small orange from the bladder aspect of the left lobe of the prostate, where the bleeding was profuse and not stopped by hot water. It answered admirably in stopping all hæmorrhage."

8. Excision of stricture and urethroplasty.

In this communication **Dr. E. L. Keyes** (*Journal of Cutan. and Gen.-Urin. Diseases*. New York, Nov., 1891) illustrates two

methods of treatment—one applicable to stricture and the other to a not unfrequent complication of it, viz., perineal fistula, to which some attention has recently been paid.

The case was that of a dense stricture following a rupture of the urethra, in which the canal is described as a fibrous cord one inch and a half long, with a minute central perforation representing the urethra. This was excised. To fill up the chasm thus made, the patient fortunately having an abundant foreskin, "a piece of the inner layer of the prepuce, one and a half by two inches, was rapidly cut away and cleaned, placed for a moment in a warm boric acid solution, and rapidly sutured into place in the roof of the gap left by the excised stricture. Four points of catgut were used to attach it to the healthy urethral mucous membrane anteriorly; no sutures were placed posteriorly, as it was impossible to readily reach the prostatic urethral end, so far had the excision gone. Several lateral points of catgut were also applied. A large drainage-tube was placed in the bladder and brought out through the perineal incision, and the parts were packed antiseptically. Recovery was uninterrupted. Small shreds of whitish epithelium were shed off from time to time, but no portion of the substance of the graft was lost. The wound was closed in five weeks. Fourteen months after the operation the patient was reported well, passing a No. 21 (F.) for himself, but showing a slight contraction at the point of imperfect junction of the graft with the healthy urethra." Dr. Keyes concludes his paper by commending the method of treating "long, tight, fibrous, and nodular strictures by excision and grafting."

The treatment of certain kinds of stricture—such, for instance, as those following injuries to the urethra, where the obstruction takes the form of a cicatrix—by excision is a practice that is gaining ground. Some admirable examples have been met with by me in the clinics at the Necker in Paris, of both Guyon and Horteloup. Where the stricture is of limited extent and the dense cicatrix merely marks the position where the urethra was torn across, the obstruction may be excised, and the urethra made up by the apposition, in successive layers up to the skin, of the superimposed parts, a drainage catheter being introduced into the bladder along the whole length of the canal. In this way I have on several occasions seen the entire incision repair by first intention; in others granulation has been sufficient to bring about closure. In both circumstances, after long intervals of time, I have known most excellent, and I believe permanent, results follow, presenting striking contrasts with the conditions preceding and following what was done. In the more extensive traumatisms

involving the deep urethra, where the chasm after excision of the scar tissue is considerable and apposition of the superimposed tissues in layers impossible, Dr. Keyes gives us an admirable example of what grafting is capable of accomplishing.

I have recently seen a case in hospital practice which well illustrates a point in Dr. Keyes' communication. It was that of a soldier who was struck on the perineum some years ago by a piece of an exploding shell. His urethra was ruptured, a part of the perineum sloughed, and a urinary fistula was the result. After a time an excellent surgeon with whom I am acquainted, at the patient's desire, succeeded in closing the fistula by inducing repair by granulation, the patient eventually voiding the whole of his urine again by the urethra. After a trial for over a year of his repaired canal, he came and asked me to give him back his old urinary fistula. He was almost worn out in his contentions with bougies to keep his urethra pervious. His strainings to pass urine were considerable; he had frequent attacks of retention of urine and cystitis; and his general as well as sexual condition, with the tight perineal scar which resulted from his closed urinary fistula, was such that he wished to retrace his steps. In these circumstances I took him into St. Peter's Hospital, opened his perineal fistula again for him on a grooved staff, and made him a happy man once more—a state which he continues to enjoy. Had in this case a graft been practicable, a different result might have followed. In the majority of cases of urinary fistula, however, it is not a loss of substance that has to be encountered. It is to the presence in some degree of stricture and the tortuosity of the false routes that patients owe the continuance of this misfortune. Where there is no loss of substance, however numerous and indirect these routes through which urine oozes may be, the division of the stricture from within, and the making of a perineal puncture through which a drainage-tube for the urine may be passed into the bladder, are usually all that is necessary to allow of a complete closure of the fistulæ, as well as the puncture wound, being brought about. In a case I have recently seen, repair was thus accomplished within four weeks where the urine for a considerable time previously had been escaping by three different channels. In this way the urethra has been restored, and the patient undergoes no other inconvenience than that of occasionally passing for himself a full-sized bougie, which he easily does. Dr. Keyes' paper gives me an opportunity of referring in general terms to some points in practice that have been recently well illustrated, in connection more particularly with the two varieties under which urinary fistulæ are presented to our notice.

9. Cystoscopy.

In his address on urinary surgery already referred to, Mr. Swinford Edwards (*Medical Press and Circular*, Oct. 12, 1892) illustrates the value of the electric illumination of the bladder in various ways. In the diagnosis of intra-vesical growths, this instrument has brought about a precision in distinguishing them previously unattainable. Though, as Mr. Edwards here observes in reference to carcinoma, "surgeons in this country do not seem to be at all keen on undertaking its removal," I do not construe this as implying that such growths are necessarily beyond operative, if beyond medical, relief. After the diagnosis has been made, we must to a large extent be guided by the symptoms marking their progress towards destruction. I have seen life prolonged and made comfortable in these circumstances where micturition has been rendered well-nigh impossible by the bleeding and *débris* that a carcinoma in a confined space is capable of throwing off. I have now before me an instance of this, where the bleeding has ceased, the catheter has been discarded, and the patient has been rendered absolutely comfortable and clean by a small suprapubic opening just about the size of the index finger. In these cases the greatest relief is often derived from a daily ablution through the suprapubic opening by means of a rubber catheter passed along the urethra to just within the vesical orifice. Where there is any liability to hæmorrhage, there is no better remedy than to perform this manipulation with equal parts of hazeline and warm water. The process is a painless one and most effectual. It is in such circumstances that operative interference is to be urged in the best interests of the patient.

Mr. Edwards also illustrates the use of cystoscopy in an interesting case that occurred in my practice at St. Peter's, where by the aid of the electric light I was able to remove with the lithotrite a body which from its nature it was impossible to feel with the sound or the instrument used for its removal. Mr. Edwards thus refers to it:—"The case was under the care of Mr. Reginald Harrison, in St. Peter's Hospital. It was that of a man who affirmed that a week previously he had passed up a piece of grass into his bladder. Mr. Harrison passed a large evacuating cannula and endeavoured to suck it out through this, but in vain; then he tried to catch it with a lithotrite, but this was not successful. He then sounded the patient, and could discover nothing; indeed, he was almost inclined to doubt the man's word. It then occurred to him to use the cystoscope, and Mr. Fenwick, who with myself was present, passed it at the operator's request. By its means several of us who were present were able to see

most clearly a branched piece of grass lying on the right base of the bladder. It was then comparatively an easy matter to seize and extract it with the lithotrite." The patient left the hospital the following day. In the instance of a pencil-case $3\frac{1}{2}$ inches long pushed into the bladder of a drunken man by some prostitutes a few years ago (*Lancet*, Aug. 11, 1877), which I removed entire by the urethra with the lithotrite, there was no difficulty in determining its presence with the sound. In the case, however, of grasses, feathers, bristles, hairs, fine bougies, and other miscellaneous objects of a soft kind, persons are in the habit of practising with, the cystoscope will prove a valuable aid both in diagnosis and treatment.

In a case I recorded some years ago ("Surgical Disorders of the Urinary Organs," 3rd Edition, p. 206), a grass-head, not unlike the instance just referred to, which was not felt either by the sound or the lithotrite, had remained for some days, and eventually penetrated the fundus of the bladder, as shown in the sketch. Death



Grass-head in fundus of bladder.

from peritonitis rapidly followed. Had the electric cystoscope then been in use, a fatal result would have been avoided by the diagnosis and removal of the foreign body. It was noted in connection with this instance, "The history was not obtained without considerable difficulty, and what had actually been inserted in the urethra was a matter for speculation, which the lithotrite only incompletely determined."

10. On the use of iodine trichloride (ICl_3) in genito-urinary surgery.

I cannot say that many new drugs of much value have during

the past year taken their place in this department of surgical work. Dr. Belfield, of Chicago (*Journ. of Cut. and Gen.-Urin. Diseases*, August, 1892), writes in reference to iodine trichloride : "It is a simple compound of iodine and chlorine made by passing chlorine gas over iodine. The result is a reddish-yellow powder emitting an odour of chlorine and readily soluble in water. I keep it in stock as a 5 per cent. solution in distilled water. When a few drops of this or a weaker solution fall into normal urine, instant decomposition ensues, both chlorine and iodine being liberated in the nascent state. A 1 per cent. solution rapidly sterilises pure cultures of staphylococcus pyogenes aureus. These facts suggest great usefulness in treating local morbid processes dependent upon bacterial invasions. I have used this agent somewhat extensively in the past six months. It has seemed a valuable agent in checking fermentation in the bladder in cases of residual urine from prostatic enlargement." It is also recommended for trial in cases of urinary tuberculosis. Injections of one-fourth of 1 per cent., increasing in four applications to 1 per cent., appear to have been used. Though I have no practical acquaintance at present with this drug, my knowledge of Dr. Belfield's work in this direction will make me give it a trial.

DISEASES OF THE RECTUM AND ANUS.

BY ALFRED COOPER, F.R.C.S.,

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DURING the last twelve months diseases of the rectum have occupied a considerable space in medical literature, and although it cannot be said that any important improvements have been made as regards treatment, several modifications, more or less valuable, have been suggested and carried out with satisfactory results. It will be convenient to allude to these in the order in which rectal diseases are usually described in special treatises.

1. Congenital malformation.

One case of this kind (*Lancet*, Dec. 5, 1891, p. 1277) exemplified the danger of using a trocar to establish an opening for the relief of imperforate rectum. The instrument was passed upwards and slightly backwards from the anus. An incision was subsequently made in the middle line, but the child died from hæmorrhage. It was found on examination that the trocar had perforated the peritoneum and the rectum in two places. As a general rule in these cases the blind end of the rectum is either partially or completely covered by two layers of peritoneum, which forms a *cul-de-sac* between the bowel and the anus. The proper method of treatment is to make a somewhat free incision towards the coccyx, and when the end of the bowel has been discovered, to open it at the posterior part. In another case, reported by Mr. J. F. Holloway (*Brit. Med. Journal*, May 28, 1892), operation by incision proved successful. Special interest attached to the case owing to the fact that the parents would not consent to the operation until the twentieth day. The treatment of imperforate anus is described by Mr. Harrison Cripps (*Brit. Med. Journal*, June 4, 1892), who lays special stress upon the risk of wounding the peritoneum, and the importance in the after-treatment of counteracting the tendency to contraction. Neglect of this precaution was the probable cause of the remarkable symptoms exhibited by a boy, aged 6 years (*Lancet*, Dec. 12, 1891, p. 1335), under treatment in the Bedford Infirmary. He had been operated on for imperforate anus soon after birth; his mother alleged that

he had passed no motion since. The anus was found to be much contracted, the skin and mucous membrane meeting half-an-inch from the surface. All attempts at dilatation were ineffectual; under chloroform a tense fibrous band, about half-an-inch from the anus, was divided backwards; the finger then reached a large cavity and a mass of hard fæces. By the aid of warm water, the finger and a spoon, about five pounds were removed. After many attempts with enemata and various drugs, it was found that 1 minim of croton oil, given once a week, caused the colon to act regularly. As a matter of course, during the six years, flatus and a small quantity of fæces and mucus must have escaped through the contracted orifice, and from a sinus that led from the perinæum into the bowel. The appearance of the abdomen led the surgeon to infer that the whole colon was represented by a straight gut lying between the sternum and the anus.

2. Hæmorrhoids.

At a meeting of the Medical Society of London Dr. Lauder Brunton read a paper on the Treatment of Piles and Allied Affections (*Brit. Med. Journal*, March 12, 1892). Attributing piles in many cases to hepatic congestion, Dr. Brunton discussed the utility of purgatives, of warm applications to the hepatic region, and of exercise, and especially recommended walking uphill and riding. Both these forms of exercise tend to compress the liver rhythmically, and more or less forcibly, between the diaphragm and the abdominal muscles. The importance of thoroughly cleansing the anus after defæcation was next pointed out, and hamamelis was recommended as a local application. A pledget of sheep's wool, deprived of its fat, should be dipped in the hamamelis and introduced within the anus, and a similar pledget, likewise soaked in the drug, should be introduced so far within the anus that at least a few fibres of it are caught by the sphincter. This external pledget soon becomes felted together into a regular pad which keeps the hamamelis in contact with the piles, and affords a certain amount of mechanical support. For piles which are chiefly internal, from $\frac{1}{2}$ drachm to 1 drachm of the hamamelis, with or without an equal quantity of water, should be injected within the anus. It checks hæmorrhage, and lessens the sensations of weight and aching which so often accompany piles. Dr. Brunton has found the "proprietary preparations" of hamamelis more satisfactory than the tincture and extract recently added to the Pharmacopœia. In the discussion that followed the reading of Dr. Brunton's paper, several speakers expressed their disbelief in the efficacy of local treatment, unless measures were also taken to deal with the cause. Mr. Pearce Gould justly pointed out that

the term "pile" covered a multitude of totally different conditions, which must be duly estimated in treating the complaint.

Mountain climbing, as a remedy for hæmorrhoids, was the subject of two letters that appeared in the *Brit. Med. Journal*, April 2 and 23, 1892, pp. 751, 891. One writer, "R. T. W.," cites the case of a medical student who had been much troubled with hæmorrhoids for several years. They were made worse by ordinary walking; but after he had spent several days in climbing hills, the hæmorrhoids ceased to trouble him, and almost entirely disappeared. The effect is supposed to be due to a kind of suction action of the spongy hepatic tissue upon the portal vessels. **Mr. Philpots** (*Brit. Med. Journal*, April 16, 1892, p. 844) points out that mountain climbing is not always practicable, and recommends hazeline, best used in the form of an injection, with 5 per cent. of salol. There is nothing new in **Mr. James'** recommendation (*Brit. Med. Journal*, Feb. 2, 1892, p. 384) of calomel as an application to hæmorrhoids. Calomel ointment is frequently prescribed for that purpose at St. Mark's hospital.

Mr. W. H. Folker (*Brit. Med. Journal*, Dec. 19, 1891) has proposed the following modification of the method of removing piles by the clamp and scissors. His instrument has five grooves in it for the passage of a needle; it is applied in the ordinary way, and screwed up so as to secure the pile, which is then cut off. The line of incision is sponged dry, painted over with styptic colloid, and sutured. For this purpose the needle should be threaded with a piece of fine carbolised catgut sufficiently long for five sutures, and passed along the first groove through the walls of the pile. The short end of the catgut is seized and held by a pair of dressing forceps, while the needle is withdrawn, without unthreading, till sufficient is left for one suture, which is then cut off, leaving the needle still threaded for the next, and so on till the five are inserted, when they are tied, and the clamp is removed. The advantages claimed for the method are:—(1) Ease of performance of the operation; (2) rapid healing of the wound; (3) absence of risk of subsequent contraction. The use of sutures is the new feature in this operation; they may, perhaps, diminish the risk of hæmorrhage.

3. Fistula in ano.

Believing that he had discovered a new method of operating, **Mr. A. S. Barling** records (*Lancet*, July 18, 1891, p. 123) a case in which a good result was obtained by excising the walls of the fistulous track. After paralysing the sphincter, and slitting up the fistula in the ordinary way, the granulations are removed by cutting and scraping, until clean raw surfaces are obtained. These

are brought together by stitches extending deeply into the tissues below the wound, so that the deep parts are closed as well as those near the skin. Aseptic silk is used for the stitches, which are inserted by means of a curved Hagedorn needle; accurate coaptation of the surfaces must be secured. With regard to the novelty of the operation, **Mr. H. A. Reeves** stated in the next number of the *Lancet* (July 25, p. 200) that about ten years ago he described an identical method (see *Brit. Med. Journal*, 1881, vol. i., p. 917). Another case in which the plan was adopted is recorded by **Mr. Hooper May** (*Lancet*, Aug. 22, 1891, p. 423). The method in question has been much discussed in America; **Dr. Stephen Smith** has an article on the subject in the *New York Medical Journal*, June 12, 1886. **Dr. Lange**, of New York, and **Dr. R. F. Weir** have also reported several cases treated in this way. The credit of priority of suggestion belongs to Mr. Reeves. The writer believes that the plan would be well adapted for simple fistulæ, with the internal openings near the anus; but that it would be very difficult to apply it to cases of deeply-seated fistulæ, with outlying sinuses or diverticula. (Further details may be found in Messrs. Cooper and Edwards' "Diseases of the Rectum and Anus," 2nd edition, p. 132.)

As a substitute for the ordinary method of slitting up a fistulous track, and with the view of preventing the restless contractions of the sphincter, **Mr. G. A. Wright** recommends (*Brit. Med. Journal*, Oct. 31, 1891, p. 945) subcutaneous division of the muscle, and subsequent removal of the granulating surface by scraping it with a sharp spoon. In the first step, the left forefinger is passed into the rectum, and the tip of the coccyx felt for. A sharp-pointed tenotome is then taken in the right hand and thrust through the skin about three-quarters of an inch to the left side of the middle line, just in front of the tip of the coccyx; the knife is pushed onwards till its point is felt by the finger in the rectum beneath, but not through the mucous membrane. The knife is then tilted, and, cutting towards the skin, divides the sphincter subcutaneously close to its origin from the coccyx. The fistula is then scraped out thoroughly with a sharp spoon, and some iodoform and boric acid are applied, with a firm pad and T-bandage. **Mr. Wright** regards this method as simpler and less severe than the ordinary plan, and thinks that the subsequent dressing is simplified, and the period of confinement to bed is shortened. It is, however, not very successful, for it failed in three cases out of nine.

In a clinical lecture on "Common Diseases of the Rectum" **Mr. Christopher Heath** gave an excellent summary of the symptoms of these affections, and of the best methods of treatment (*Brit.*

Med. Journal, Dec. 19, 1891, p. 1299). The writer thoroughly agrees with Mr. Heath in his remarks on the application of nitric acid to hæmorrhoids. This method of treatment is suitable only for small vascular patches; "to apply nitric acid to great masses of internal piles is really to play with them, and not to cure them."

4. Malignant disease of the rectum.

For some years past the methods and results of excision of rectal carcinoma have attracted much attention among surgeons in various countries. The ordinary operation (from the perinæum) has been considerably modified in order to admit of the removal of malignant growths comparatively high up in the rectum. In the *Deutsche Zeitschrift für Chirurgie*, Bd. xxxii., Hft. 1, Dr. C. Arnd, of Bern, discusses the various methods of operating in rectal cancer. He gives the histories of 35 cases operated upon by Kocher, and analyses the statistics of 230 other cases treated by other surgeons. In 1874 Kocher devised an operation, consisting of a long posterior incision, with removal of the coccyx, if necessary for reaching the upper part of the growth. He claimed that this method enabled the operator to remove all the diseased tissue with more exactness and greater ease than the older operations, and that bleeding could be more easily arrested. Kraske went a step farther by suggesting the removal of a portion of the sacrum. Dr. Arnd thinks, however, that the long incision of Kocher will suffice for the large majority of cases. Of the thirty-five cases thus treated, ten had a fatal termination. Of the remainder, nine were living and free from a recurrence of the disease after intervals of not less than four years.

Of the 230 cases collected by Dr. Arnd, death was due to the operation in 12·17 per cent. The peritoneum was wounded in sixty-nine cases, and of these only nine died from peritonitis. Such wounds should be closed by suture as soon as possible.

The most frequent causes of death from the operation are suppurative peritonitis and cellulitis, both being due to infection by faecal matter. Such infection may best be avoided by preliminary colotomy, recommended by Schede and others, and by the internal administration of antiseptics, such as naphthol, thymol, etc. After stitching the divided rectum to the external wound, or applying the circular intestinal suture, the threads often give way and faecal contamination of the raw surfaces is a probable result. Plugging with iodoform gauze is likely to cause symptoms of general poisoning. In Kocher's thirty-five cases two fatalities were attributable to this cause. The excessive use of antiseptics is considered to be very dangerous in these operations, as such

agents, by their influence on the action of the heart, are likely to intensify the collapse caused in many cases by profuse hæmorrhage. Dr. Arnd thinks that despite the more frequent adoption of radical operations, the average mortality will decrease owing to greater care in arresting hæmorrhage, in the use of dangerous antiseptics, and in the subsequent treatment.

For severe cases of cancer of the rectum, the writer is strongly in favour of the performance of colotomy as a preliminary to excision. Its great advantages are that it enables the wound caused by the latter operation to be kept clean and comparatively aseptic.

The various methods of operating for rectal carcinoma, and their results, are likewise discussed by Dr. G. B. Schmidt (*Berlin. Klin. Woch.*, June 13, 1892). After referring to the effects of colotomy as a palliative measure, he points out that all methods of removing the diseased part fall under two headings, which may be termed *perinæal* and *sacral*, respectively. The latter method comprises a long posterior incision, and removal or osteo-plastic resection of the lower end of the vertebral column, in order to expose more of the rectum, to facilitate the arrest of hæmorrhage and the removal of the whole of the growth, and to save the sphincter when not implicated by the disease. Adhesions can also be more readily dealt with. As to the results of the two classes of operations, reference is made to Professor Czerny's cases. In thirty-two patients operated upon by the perinæal method there was only one death (3·1 per cent.); among thirty-six patients operated on by the sacral method, there were seven deaths (19·4 per cent.), all but one from septic peritonitis. In the sixty-eight operations for rectal cancer, the total mortality was eight (or 11·7 per cent.). Dr. Schmidt endeavours to answer the important questions referring to prolongation of life, relapses, and cures of the disease. Out of fifty-nine cases, twenty-five died during the last six years; twenty-eight were still alive, and of six no report could be obtained. Twelve patients were known to have survived for two years; in four the disease had recurred. The longest survival after operation was five years and three-quarters. With regard to continence of fæces, this is described as "good" in cases in which the distal portion of the bowel could be united to the other end, and as "relatively good" in the majority of cases of perinæal anus. This latter result was also attained in sacral operations when the circular suture proved successful; but when the artificial anus had to be formed in the sacral region, there was, of course, complete incontinence.

A case in which a rectal cancer was removed by partial

resection of the sacrum is recorded by **Dr. J. C. Davie**, of Victoria, British Columbia (*Brit. Med. Journal*, Feb. 13, 1892, p. 330). The method adopted was Levy's modification of Kraske's operation, but some alterations had to be made to meet the requirements of the case. The patient had been previously subjected to colotomy; four months after the operation (according to Dr. Davie), he was reported as enjoying his life and presenting no symptoms of recurrence. The ultimate result of the case, however, was far from satisfactory. **Dr. A. Davidson**, writing from Los Angeles, California, reports (*Brit. Med. Journal*, March 26, 1892, p. 682) that three-and-a-half months after the operation he found signs of recurrence of the disease. The patient survived the operation only seven months; it may well be questioned whether he derived any benefit therefrom. It must, however, be added that the operation was performed at the urgent request of the patient, and after he had been made aware of the probabilities involved.

The details of a somewhat formidable operation for removal of a rectal cancer are given by **Mr. W. H. Brown**, of Leeds (*Lancet*, June 4, 1892, p. 1235), who employed a modification of Kraske's plan. The growth was too high up to allow of ordinary proctectomy, though the bowel was freely movable within the pelvis, and the finger could, with difficulty, be passed beyond the disease. Left lumbar colotomy was first performed, and during five weeks afterwards the lower portion of the bowel was well washed out with carbolic lotion twice daily. A large silver catheter was retained in the bladder throughout the operation, which was begun by raising a square flap, four inches long and four wide, from the posterior surface of the sacrum. The attached border was opposite the third piece of the bone, and the free edge two inches above the anus; the flap, which included all the tissues, was turned upwards. The sacrum was then sawn across at the 4th vertebra; its lateral attachments below as far as the tip of the coccyx were next severed, and this bone-flap was turned downwards. Hæmorrhage having been controlled, scissors were used to free the gut from its attachments. It was found that the disease extended higher than the level of the cut edge of the bone, and the removal of an additional $\frac{3}{4}$ ths of an inch was effected. The rectum was then divided above the internal sphincter and drawn out of the wound; it was slit up on its posterior surface above the level of the growth, and then seized and detached with scissors half an inch above the diseased portion. The free end of the bowel was then stitched into the upper angle of the wound, and after irrigation and filling the wound with iodoform gauze,

the sacrum was replaced, the skin-flap turned down, and drainage-tubes and sutures applied. A few days after the operation there was some trouble with the artificial anus in the loin, and finally the colon was drawn out and divided. Mr. Brown thinks that the size of the opening increases the safety of the operation. As the parts are all in view, the dissection can be made with precision, all bleeding points can be controlled, and thorough drainage provided for. Referring to this case **Mr. Herbert Snow** expresses the opinion (*Lancet*, June 11, 1892) that the growth might have been removed by the ordinary perinaeal operation.

VENEREAL DISEASES.

By J. ERNEST LANE, F.R.C.S.,

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THOUGH much has been written on the treatment of syphilis during the past year, still it cannot be said that there is any great novelty in the suggestions brought forward.

1. Review of treatment of syphilis.

While, on every hand, it is agreed that syphilitic patients must be placed under the influence of mercury, there are still great differences of opinion as to how this should best be effected, whether the drug should be given by the mouth, whether it should be introduced subcutaneously, or by inunction, or by fumigation. As Fournier has recently pointed out in one of his clinical lectures, it will not do to abandon any one of these methods, for each has its indications and advantages. In grave cases, inunctions and subcutaneous injections are indicated on account of the energy of their action; in mild cases, where a less energetic and more gradual effect of the drug is required, it will not be necessary to use these inconvenient, and, in the case of subcutaneous injections, painful methods; administration by the mouth will suffice. In the case of those who are compelled to keep secret their disease, inunction is certainly impossible. With subjects, on the other hand, suffering from dyspepsia, in whom mercury will increase the disturbances of digestion, absorption by the skin is the appropriate plan to adopt; the same is the case with those who are taking besides the mercury other drugs, such as iron or iodide of potassium; it is logical to limit the fatigue of the stomach to the absorption of these remedies, and to spare it the extra strain of taking up the mercury. In young syphilitic children the integrity of the digestive functions is a question of vital importance; with them inunctions constitute the one means of administering the drug. Finally, says Fournier, it will not do to abandon any of the methods at our disposal, and particularly inunctions. From this it may be gathered that Fournier is rather disposed to give the preference to inunctions, but it cannot

be said that this opinion is universally held on the Continent, as is evidenced by the large number of preparations recommended for subcutaneous injections of mercury into the system. To enumerate these would serve no good purpose, for the majority of them have not had a sufficient trial to warrant their recommendation, and while in the hands of their introducers many preparations have produced undeniably favourable results, still other observers on giving them a trial have failed to achieve the same success. In England, as well as in America, this method of administering mercury has not as yet found much favour, the principal objections urged against it being the pain inflicted upon the patient, and the frequency of relapses after this as compared with the other modes of treatment. We are in the habit of administering mercury by the mouth, except in the case of children and with patients whose stomachs will not tolerate it. The writer has been in the habit for some years past of administering the tannate of mercury in pills, and prefers it to any other preparation; its advantages were alluded to at one of the medical societies two years ago, and may be recapitulated from a paper read by **Dr. Allen**, of New York (*New York Med. Record*, 1892), whose opinion confirms all that was said of it by its originator, **Dr. Lustgarten**, of Vienna. Tannate of mercury, not being acted upon by dilute acids, passes through the stomach without any changes whatever; on reaching the duodenum it is reacted upon by the alkaline secretion of that portion of the intestine, and is reduced to exceedingly small globules of metallic mercury, so small that a direct absorption in this state by the villi of the small intestine is imaginable; in a large majority of cases it exercises no irritating influence upon the intestinal wall; it is very rapidly absorbed, and mercury has been found in the urine within twenty-four hours after the administration of the tannate; it produces stomatitis only in a mild degree, for, having no cumulative properties, it can be discontinued on the first appearance of irritation of the gums. Its advantages, as summed up by **Dr. Allen**, are:—1. It is stable, does not decompose, dissolve, or change readily. 2. It is quickly assimilated, and quickly eliminated. 3. A relatively large quantity of mercury can thus be given with safety, and a relatively large proportion is absorbed as shown by analyses of the urine. 4. It is not so prone to cause salivation as calomel and the green iodide. 5. It is not so likely to cause diarrhoea and gastro-enteritis as the bichloride and green iodide. 6. It is well tolerated by children. 7. It being unchanged in the stomach, and only decomposed after it enters the alkaline contents of the small intestine, the stomach escapes any possible

irritation, and as we calculate to introduce something like two ounces of mercury by this organ during an anti-syphilitic course, it becomes very necessary to give it in such a way as not to upset the stomach.

As to the time when the mercurial course should be commenced there still remains a considerable difference of opinion, some maintaining that it should be begun immediately that the diagnosis of a syphilitic chancre has been arrived at, while others would defer its administration until the outbreak of some secondary manifestation.

2. Methods of treatment obscuring diagnosis.

The early diagnosis of syphilis is often by no means easy, and, as pointed out by Mr. Arthur Cooper (*Lancet*, May 7, 1892) there are certain methods of treatment which render it the more difficult, such as 1. The application of irritants, as nitrate of silver, to a doubtful sore. 2. The application of irritants, such as iodine paint, to the groins. 3. The untimely administration of mercury. Mercury should not be given while the nature of the sore still remains doubtful, because the drug may either so modify the early signs of syphilis as to render them difficult to recognise, or may possibly completely abort them. Many Continental surgeons go further than this, and recommend that treatment should never commence till the appearance of secondary symptoms; there can then be no doubt about the diagnosis, and, as pointed out by Leloir, the tertiary manifestations of the disease are not predisposed to by this delay in the commencement of the treatment. Fournier and Jullien (*Kreis. Med. Correspond. Blatt*, Stuttgart, 1892) advise the commencement of anti-syphilitic treatment in the primary stage of the disease, and maintain that it either prevents the appearance of secondary symptoms, or that it ensures a milder manifestation of them. Other authorities, such as Unna, Neisser, and Leloir, believe that early treatment merely postpones the date at which the secondary manifestations appear, and that when eventually they supervene they take on an aggravated and more chronic form. Kaposi does not institute anti-syphilitic treatment until the roseola appears, holding that the so-called preventive treatment is often followed by cerebral symptoms. White believes with Neumann that when treatment is commenced at the inception of the disease, obstinate affections of mucous membranes and of the iris take the place of the skin eruptions, which are far more amenable to treatment.

3. Extirpation of the initial lesion.

Extirpation of the initial lesion is recommended by some observers, amongst them by Ehlers, of Copenhagen (*Journal of*

Cutaneous and Genito-Urinary Diseases, Feb., 1892), who in a monograph on this subject sums up as follows:—

1. Excision of the initial lesion is capable, in certain rare cases, of preventing general syphilitic infection of the system.

2. All the excisions with negative results, where the operation has been performed twenty-four to forty-eight hours after the appearance of the chancre, prove nothing. The object is not to extirpate as soon as possible after the appearance of the chancre, but as soon as one can after the infection. All these cases have had a period of incubation of twenty to thirty days.

3. Excision of the initial lesion, although it has not been able to prevent general infection, yet has an attenuating influence upon the course of the disease.

4. Mercurial treatment should be instituted even if, during an observation of several months, the patient does not present a secondary symptom. It is possible that the secondary symptoms may be so slight as to be overlooked.

5. Absence of reinduration of the cicatrix does not exclude the possibility of the appearance of secondary symptoms.

6. Reinduration of the cicatrix signifies a negative result, and may of itself be the sole symptom that follows.

7. Excision should be performed in as many cases as possible, without, however, promising the patient a positive result.

8. The wound after excision heals like any simple wound, if the sclerosis has been radically removed. Hence, when a chancre of large size drags along, and refuses to heal, when conditions are favourable, it should be extirpated. [The experience of the writer in this form of treatment has not led him to form a very favourable opinion as to its merits, and so far he has not been able to observe any modification of symptoms following excision of the initial lesion. He has not, however, met with cases in so early a stage of the disease as that mentioned by Ehlers, and doubts if they will often come under observation at so early a time. In England, patients do not seek advice until the sore has reached a stage when, according to Ehlers, excision will not modify the course of the disease.]

4. "Syphilis tardiva."

In the second International Dermatological Congress held in Vienna in September, 1892, Professor Neumann opened the debate upon syphilis tardiva (*British Journal of Dermatology*, Oct., 1892). Though the question of treatment of tertiary syphilis was not under discussion, still the ætiology of disease has such an important bearing on treatment, that the views expressed, and the conclusions arrived at, in the Congress, may be deemed worthy of a

place in the "Year-Book of Treatment." Professor Neumann pointed out that many accidental factors played a rôle in the causation of late syphilitic manifestations, *e.g.*, want, unsanitary surroundings, tuberculosis, malaria, scorbutus, diabetes, Bright's disease, and alcoholism. Imperfect treatment of the earlier stages was frequently followed by late manifestations. The tissue-changes which persist after the recent stage, give rise to tertiary syphilis. The changes and morbid products brought about by syphilis are far from ephemeral, and require prolonged treatment for their absorption; thus it is that late syphilitic manifestations so often are localised on the seats of antecedent early lesions. From statistics, Neumann concludes that tertiary symptoms most frequently appear in the third year after the primary sore, and in gradually diminishing proportion in subsequent years. Two-thirds of the cases had not been treated before the appearance of tertiary phenomena, while in the remaining one-third, treatment had been imperfectly carried out. Affections of the skin were the commonest manifestations; then came bone disease; while syphilis of the viscera and nervous system was very seldom noted. The point raised for discussion was whether these manifestations were necessarily preceded by earlier secondary symptoms, which had passed unnoticed. The conclusions arrived at were as follows:—

(1) The chief ætiological factor in tertiary syphilis is some latent virus resulting from imperfect treatment in the early stages, assisted by constitutional diseases as before mentioned.

(2) Tertiary syphilis cannot be considered as exclusively a metastasis, but in most cases as the result of some exudation persisting in the tissues, which, under the influence of some of the previously enumerated factors, takes on new action.

(3) Tertiary syphilis occurs in about 6 or 7 per cent. of all syphilitic cases, and in the great majority of cases does so in the third year after primary infection. It may, however, show itself sooner or much later.

(4) Its most frequent manifestations are in the skin, mucous membranes, and bones.

(5) So-called epidemic syphilis (*radesgye*, *skerlevo*, *frenjak*, etc.) is not a disease *sui generis*, but ordinary tertiary syphilis along with some cases of late hereditary syphilis.

(6) Hereditary transmission to later generations than the first has not been proved.

(7) The examination of the blood gives similar results to that in secondary syphilis; the amount of hæmoglobin present is invariably greatly diminished. Diminution of the red and increase

of the white corpuscles, although less marked, are equally constant changes.

Post (*Boston Med. and Surg. Journal*, 1891) had previously called attention to the following facts; that by far the largest number of cases of tertiary syphilis occur in the third year after inoculation; from the third year onwards the number diminishes, and after the tenth year it may be considered rare. Most of the cases of late syphilis, in which the earlier history was known, were late in coming under treatment, or there had been some fault in the therapeutic measures adopted for their cure.

5. Review of general treatment of syphilis by Ehrmann.

Ehrmann (*Centralbl. f. die ges. Ther.*, Dec., 1891, quoted in *B. M. J. Suppl.*, Jan. 2, 1892) gives a review of the more recent methods of treating syphilis. The efficiency of mercurial inunction depends, among other things, upon the number of the follicles in the skin, and no greater effect is obtained by rubbing in a larger quantity of the ointment, unless over a greater extent of skin surface. Mercurial injections in exact dosage have the advantage of not depending on the patient for being carried out, and of the distinction of the general from the local effects. The disadvantages in using soluble mercurial salts for injection are that they pass through the body rapidly, and that they produce toxic effects more easily. The remains of the syphilitic poison are still present, and it may multiply so as to give rise to relapses. With inunction, as well as with the injection of insoluble preparations, a *dépôt* of mercury is left, which is gradually absorbed. According to Lichtenstein, relapses are more frequent after the injection of partially soluble preparations, such as the salicylate of mercury, than after the more insoluble, such as the grey oil. With the latter the injection is made weekly, whereas with soluble preparations it must be made daily, and thus one advantage over inunction is lost. Great care must be taken in cleaning the needle. As to the duration of treatment, the limit is generally put down as three years, but it cannot be named for all cases. Ehrmann gives two years as the limit, but says that if after this period a relapse occurs, or if marriage be thought of, an extra year of treatment must be undergone. The object is to avoid rather than to treat relapses. If a relapse occur within a few weeks after the discontinuance of the first treatment, one may be obliged to give mercury internally. At the end of three months, whether relapse or not, pills of the protiodide are given. After six months the patient has seven injections of the grey oil, at intervals of from five to eight days, or twenty to twenty-five

inunctions. This is repeated at the end of the first year. If there is a relapse in the first half-year, mercury is given internally at the end of the third quarter. In the second year the inunctions or injections are repeated twice. If internal treatment is adopted, seventy-five pills of the protiodide correspond to four injections. Mercury taken by the mouth and absorbed into the portal circulation may be excreted with the bile, and thus the full effect is not obtained. The treatment inaugurated by **Fournier** is a considerable advance; and though it is not time yet for a statistical statement, nevertheless it is certainly known that hereditary syphilis and severe and early relapses are decidedly diminishing.

6. Aristol in venereal ulcers.

Dr. Guntz (*Memorab.*, Jan., 23, 1892, and *Journal of Cutaneous and Genito-Urinary Diseases*, Aug., 1892) says that aristol should not be used in the form of an ointment, but should be applied directly to the wound. It is insoluble in water, but forms a tough brown pap with olive oil, which is difficult of application. The undissolved powder itself is inert. Therefore the ulcer should be strewn with aristol, and a drop of olive oil be allowed to fall slowly from a glass rod on to the powder. Without waiting for the solution to be effected, the ulcer is promptly covered with some fine impermeable tissue, under which the solution takes place slowly. No cotton, or charpie, should be applied to the ulcer. If the secretions are very profuse, or if the ulcer is in an unfavourable position, the dressing must be secured by means of court-plaister. The application should be renewed twice daily after careful removal of that previously applied. Its advantages are that it is painless, odourless, and non-irritating, and that there are no inconveniences attaching to its use. Painful ulcers become painless, and previously bedridden patients are able to go about after its use. If, however, as is the case in corroding or torpid ulcers, the healing tendency is not sufficiently rapid, recourse must be had to iodoform. Although aristol is not curative in soft chancres, nevertheless, where it is substituted for iodoform, there is no danger that the lesions will assume a more serious character. This happens frequently when mercurial ointments are used. In hard chancres its action is better. But it is of especial value in secondary lesions, in ulcerating gummata, in tubercular syphilides, etc. Although, if continued long enough, this treatment will effect a cure, nevertheless, it is hastened by the internal administration of anti-syphilitic remedies.

7. Gonorrhœa and its treatment.

The treatment of gonorrhœa has of late years undergone considerable modification, and there is a growing tendency to make

use of active instead of palliative measures in the initial stages of the disease. The use of astringent injections, or applications, during the acute phase of the disease has now many supporters, whereas formerly this plan of treatment was seldom adopted, and did not meet with marked success. Writing on this subject, **Mr. Jonathan Hutchinson** (*Archives of Surgery*, Jan., 1892) recommends an injection of a solution of chloride of zinc, of the strength of grs. ii. ad ʒi. , coincidently with the sandal-wood oil capsules, and a night dose of ʒiii. of sulphate of magnesia, with ʒss. of bromide of potassium. If the case is very acute, and attended by swelling of the corpus spongiosum, tartar emetic, or tincture of aconite, is prescribed. The risk of complications, such as orchitis, prostatitis, and cystitis, is greater in cases that have been allowed to develop, rather than in those treated abortively.

An application which is favourably spoken of by many observers, is a solution of nitrate of silver, either used as an injection or applied by the surgeon. **Mr. Cotes** (*Lancet*, Feb. 27, 1892), one of the surgeons at the London Lock Hospital, passes an endoscopic tube down the urethra, which is then cleansed by dry cotton-wool fixed in a stilet, and is subsequently examined by the electric light; the exact extent of the inflammation can then be clearly defined, and the tube need not be passed beyond its posterior limits. A mop of cotton-wool on a stilet, and charged with a solution of nitrate of silver, gr. x. ad ʒi. , is then passed down the endoscopic tube, and thrust through its distal aperture; the tube and the mop are then withdrawn simultaneously. For the 2 inches of the urethra near the meatus a fresh mop is used, so as to completely saturate this portion of the passage, in which the disease commences, and where also the inflammation is most intense. Afterwards a saline purgative, with an alkaline or copaiba mixture, is given, and the patient is instructed to use a mild injection, such as a solution of Condyl's fluid. The immediate effect of the treatment is to produce a free purulent discharge during the first twenty-four or forty-eight hours; this rapidly diminishes in amount, becomes watery, and usually disappears entirely in seven or ten days.

Dr. Guiteras, of New York (*Journal of Cutaneous and Genito-Urinary Diseases*, April, 1892) advocates treatment by the injection of a weak solution of nitrate of silver, the strength of which should be increased daily until the discharge becomes very slight, when it is decreased. He also recommends its use in acute gonorrhœal cystitis, and in cases of chronic deep urethral inflammations.

8. Gonorrhœal epididymitis.

Nitrate of silver solution as a topical application to the posterior portion of the urethra is recommended by Dr. Alexander (*Journal of Cutaneous and Genito-Urinary Diseases*, Dec., 1891) in the treatment of epididymitis. He points out that this disease is always preceded by and associated with a posterior urethritis, and that the intensity of the epididymitis is in most cases regulated and controlled by the intensity of the urethral inflammation; further, that the principal cause of relapse in an epididymitis seemed to be an increase in the urethral inflammation. Most cases of epididymitis have a tendency to relapse on the slightest provocation, and it is to prevent relapse by controlling the inflammation in the posterior portion of the urethra, that the nitrate of silver instillations are used. The value of nitrate of silver instillations in acute posterior urethritis and in urethro-cystitis is well recognised, and Dr. Alexander shows that the treatment is equally applicable to cases of acute epididymitis. If, upon the first indication of the extension of an urethritis into the posterior urethra, deep urethral instillations of the nitrate of silver are begun, epididymitis often will be prevented. The method of procedure adopted by Dr. Alexander is as follows; he begins by giving a tentative injection of about 1 grain to the ounce; the first injection should never be stronger than 3 grains to the ounce, and not more than 15 minims of the solution should be injected. The point of the catheter-syringe should be introduced just within the membranous urethra. The instillation should be made soon after the patient has made water, so that there may be as little secretion in the urethra as possible. The instillation is repeated in twenty-four or forty-eight hours, according to the effect produced by the first. When a weak injection has been given to begin the treatment, and does not cause pain, the second should follow in twenty-four hours. From 3 to 8 grains to the ounce is usually as strong as it is necessary to use in acute epididymitis. Dr. Alexander uses these injections in all cases of epididymitis, no matter how acute the inflammation, and is satisfied that the method is one of great value in chronic as well as in acute cases. One great advantage of the treatment is that it overcomes the tendency to relapse, so characteristic of epididymitis; another is, that the duration of the accompanying urethritis can be shortened because treatment of the posterior urethra is continued during the existence of the epididymitis.

9. Gonorrhœal cystitis.

Mr. Edmond Wickham also advises the use of nitrate of silver solutions in acute gonorrhœal urethro-cystitis; if the pyuria is

persistent he injects twenty drops of a 15 per cent. solution of nitrate of silver not only into the posterior urethra, but also into the neck of the bladder. After two or three instillations the urine generally becomes as clear as normal. With this topical treatment he also strongly advocates the administration of essence of sandal-wood, which, he points out, has a beneficial action on hæmaturia, as well as upon frequent and painful micturition; in some cases it gets rid of the purulent deposit in the urine; in other cases this only disappears with time.

10. Comparison between nitrate of silver and corrosive sublimate solutions as injections.

Diday (*Lyon. Médical*, March, 1892) institutes a comparison between the relative merits of solutions of corrosive sublimate, and of nitrate of silver, as injections for gonorrhœa, and concludes that the sublimate solutions are uncertain in their action. On the other hand, the action of nitrate of silver is perfectly reliable, and can be regulated accurately by increasing or decreasing the strength of the solutions. Diday gives to nitrate of silver the preference over all other local applications, and uses it at a strength of 1 in 20 for abortive treatment; while, as an ordinary injection, he employs it in a strength of from gr. $\frac{1}{2}$ to gr. 4 to the ounce.

11. Soziodolate of zinc.

Schwimmer (*Vienna Pharmaceutische Post*, 1892) recommends the use of soziodol of zinc in the treatment of acute and chronic gonorrhœa, employing in the acute forms from $\frac{1}{2}$ to $1\frac{1}{2}$ per cent. of soziodolate of zinc in distilled water, to which $2\frac{1}{2}$ per cent. of laudanum was added. In the chronic form he replaces the laudanum by 1 per cent. of the salicylate of bismuth.

THE DISEASES OF WOMEN.

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I.—DISEASES OF THE UTERINE APPENDAGES.

THE subject which has been during the year the most warmly debated, and upon which opinions still are widely divergent, is the treatment of *inflammation of the uterine appendages*. It is necessary to consider together all the different forms of disease which this title comprises, because diagnosis can only in the minority of cases get nearer than this title.

Pathology must always be the basis of treatment; and therefore I quote first a paper on the pathological anatomy of the ovaries, and then some contributions bearing on the ætiology of tubal disease.

1. The ovaries with uterine fibroids.

There is no doubt that changes in the ovaries have been often found with uterine fibroids, and many think that this is more than a coincidence. But the first thing is to be sure of the facts, and the first paper I quote helps as to these.

Bulins (*Zeit. für Geb. und Gyn.*, Bd. xxiii.) reports a careful investigation into the condition of the ovaries with fibromyomata of the uterus. The following are his conclusions:—(1) The ovaries are always more or less altered; (2) they are almost always enlarged, partly from increase in the follicles, partly from increase in connective tissue; (3) the vessels are increased, thickened, narrowed, with hyaline degeneration of their walls. The stroma is infiltrated with small cells; (4) the follicles are often either degenerate or cystic; (5) premature retrograde change in primordial follicles is almost constant; (6) the extraordinary number of corpora fibrosa is remarkable.

2. Measles and salpingo-oophoritis.

In the "Year-Book" for 1888 (p. 241) I quoted some observations by Klotz which went to show that measles often produced endometritis, which in its turn led to subsequent troubles. The paper I next quote illustrates further the importance of measles as a cause of disease of the internal genital organs.

Galliard (*Nouvelle Arch. d'Obst. et de Gyn.*, Suppl., p. 228) relates the case of a virgin of 21 who, on the twelfth day of a severe attack of measles complicated with menorrhagia, had renewed fever and pain in the right iliac region. Symptoms of general peritonitis followed, and she died on the twenty-fifth day. The autopsy showed peritonitis from the bursting of a small abscess in the right ovary, and thickening and dilatation of the right tube. Uterus, left tube, and ovary were healthy. Chantemesse, in the discussion, said that the same thing had been observed after typhoid fever.

3. The extension upward of gonorrhœa in women.

Wertheim (*Arch. f. Gyn.*, Bd. xlii.) contributes a long paper on the gonococcus, which, if his observations are correct, is a very important one. In last year's "Year-Book" (p. 331) authors were cited who held widely different views as to both the effects of gonorrhœal infection in producing tubal disease, and the importance of the gonococcus of Neisser in the production of gonorrhœa. Wertheim's paper, if accurate, settles the latter point, and goes far towards settling the former.

Wertheim first grapples two preliminary questions. The first is, *can we with certainty recognise the gonococcus?* Different cocci are so much alike that it is not surprising that some should have been sceptical as to the recognition of the gonococcus. Details as to Wertheim's mode of cultivation of the coccus will not interest the practitioner, and the bacteriologist would need them given in full. Here it is enough to state the result, which is, that Wertheim has succeeded in isolating and cultivating the coccus on artificial media, and in producing gonorrhœa by the inoculation of the cocci so cultivated. If there be no error in his experiments, the agency of the coccus in producing gonorrhœa is beyond doubt. The second preliminary question divides itself into two: (1) *are living gonococci present in the pus of gonorrhœal tubes?* (2) *are there any other pyogenic bacteria in such tubes?* Wertheim examined the pus in seven cases of pyosalpinx traced to gonorrhœa. In all he was able to cultivate from the pus cocci resembling in all respects the gonococcus, and in none was he able to cultivate any other kind of coccus. In three he inoculated the coccus cultivated from the pus and produced gonorrhœa. (This latter experiment was not carried out in the other four, for lack of patients to whose urethras the coccus could be applied.) His conclusion is, that the observations of microscopists who have found the gonococcus, and no other, in the pus of gonorrhœal tubes, are correct.

The next branch of inquiry is, *does the gonococcus produce*

peritonitis? This inquiry can only be carried out experimentally in animals. The mucous membranes of animals differ from the human in being but little affected by the gonococcus, and similar differences might be expected in the peritoneum. But we must nevertheless here be content with results derived from animals. The pure culture of the gonococcus was injected into the peritoneum. In mice, guinea-pigs, rabbits, and rats, peritonitis was produced. In dogs the experiment failed. But the peritonitis produced by the gonococcus differed from that set up by the *staphylococcus* and *streptococcus pyogenes*, in that the former was always local only, and was never fatal; the latter general and fatal. How is it, asks Wertheim, that the gonococcus has not yet been found in peritonitic exudations in women? The answer is, "It has not been looked for." Wertheim has examined the whole thickness of tubes removed for gonorrhœal salpingitis and peritonitis. He finds that the gonococci spread through all the layers of the tube wall and reach the peritoneal surface. Salpingitis may thus produce peritonitis, either by the escape of the pus through the open ends of the tubes, or by the spread of the inflammation, and the cocci exciting it, through the thickness of the tube. This fact introduces unity into our conceptions of salpingitis, for it shows us how different forms of tube disease (interstitial, purulent, follicular, etc.) may own the same origin. It may be objected to this, says Wertheim, that in operations, gonorrhœal pus sometimes escapes into the peritoneum, and yet recovery takes place without peritonitis. To this he replies, first, that in such cases the pus may only contain dead cocci; second, that the cocci may be killed by the antiseptics used; third, that the peritoneum, if its epithelium be intact, has some power of protecting itself against cocci, even pyogenic cocci, especially if they are well diluted with water. It is very frequent, however, says Wertheim, to find in such cases fresh perimetric exudations after the patient has completely recovered from the operation. Various insufficient explanations have been given of these events, the true one being, in his opinion, that they are due to local inflammation caused by the gonococci remaining in the stump. [This seems to me inadequate. If the gonococci produce the perimetritis, why do they wait several weeks before doing it?] To prevent such attacks Wertheim recommends the application of Paquelin's cautery to the stump.

Wertheim considers Bumm's statement that the gonococcus is a parasite which only inhabits cylindrical epithelium, as disproved; for it can penetrate pavement epithelium and connective tissue. He quotes Dinkler's experiments on the cornea. This investigator found that the gonococci, inoculated in the pavement epithelium of

the cornea, penetrate to the iris. He has experimented on himself, by injecting gonococci under the skin, and he found that such injections produced inflammation, but not suppuration. Inflammation of the muscular and peritoneal walls of the tube, peri-urethral and prostatic inflammation, lymphangitis, ovaritis, peri- and parametritis, are not the result of mixed infection, but simple effects of the gonococcus. He relates two cases in which inflammation ending in purulent infiltration of the stroma and finally abscess-formation were, in his view, the direct consequence of the penetration of gonococci to the ovary. The abscesses were associated with purulent salpingitis, but there was no communication between the abscess cavities and the tubes.

[The frequency in the other sex of inflammation of peri-urethral tissues from gonorrhœa, seems to me against the view that the gonococci act solely upon the epithelium of the mucous membrane, and is presumptive evidence in favour of Dr. Wertheim's views.]

In a paper subsequently published, which I next quote, the author supplies the link in the chain which, in this paper, he said was wanting.

Wertheim (*Cent. für Gyn.*, 1892, No. 20) relates a case of peritonitis in which gonococci were found present in the peritoneal exudation. The tube was inflamed and its end open, thus plainly showing the route of infection. He claims that this is the first case in which peritonitis has been proved to be gonorrhœal by the discovery and cultivation of the cocci in the inflammatory effusion.

I come now to the clinical aspect of disease of the appendages. I take first an illustrative case of

4. Fatal peritonitis from rupture of pyosalpinx.

Pichevin (*Annales de Toc.*, June, 1892) publishes a case which is important, because such different ideas exist as to the danger of pyosalpinx. A patient suffering from hæmorrhage and an inflammatory lump was treated by dilatation and curetting of the uterus. No bad symptoms followed, and the patient left her bed on the fifth day. On the ninth day the patient was seized with sudden abdominal pain, followed by the development of acute peritonitis. On the third day of this illness the abdomen was opened, and the peritonitis found due to pyosalpinx, the pus from which had escaped into the abdominal cavity. The operation, however, proved too late, and the patient died the next day.

5. The removal of the uterus for disease of the uterine appendages.

In last year's "Year-Book" I referred to the proposal of

Péan (first put into practice by him, and then enthusiastically advocated by **Ségon**d) to treat disease of the uterine appendages by vaginal extirpation of the uterus, together with its appendages if necessary. It is urged, in favour of this plan, that disease of the uterine appendages is usually secondary to disease of the uterus, and that we therefore go more to the root of the matter by taking away the uterus. The diseased tubes can drain themselves into the wound, or be removed as well as the uterus. By removing the uterus, suppurating cavities in the cellular tissue around the uterus are opened up, and can be drained, and suppurating cavities in the peritoneum around the uterus and appendages can be dealt with in the same way.

Péan (*Arch. de Toc.*, 1891, p. 576), who is known as a bold and tolerably successful abdominal surgeon, has set forth his views at length. He is surprised that so little notice has been taken of the work of himself and his pupils, which marks a new stage in the progress of science, especially after his demonstrations of the value of forcipressure and of "morcellement"—that is, removing the uterus in bits. Abdominal hysterectomy he now only practises when very urgently indicated. If the vaginal operation is commenced, the surgeon is not forced to complete it if the conditions found make it uncalled for. The different conditions which call for vaginal operations are the following:—

(1) *Tumours of the uterus*.—If a tumour is bigger than a foetal head at term, the abdomen must be opened if the removal of the tumour is judged necessary. Tumours of smaller size can be, and should be, removed by the vagina. This has long been recognised with regard to tumours of the neck of the uterus, but **Péan** would extend it also to tumours of the body. It is sometimes difficult to distinguish, when the canal of the cervix is closed, between hæmatometra or hydrometra and a fibroid. If vaginal extirpation by "morcellement" is commenced, the diagnosis is quickly made in the course of the operation, and the procedure modified in accordance with the condition found. Whatever the seat, consistence, and nature of uterine tumours, or the operative difficulties present, so long as the tumour is not bigger than a foetal head, the vaginal method is the best way of dealing with them.

(2) *Tumours of the tubes*.—Inflammation of the tubes is almost always consecutive to endometritis. Whether the tumour be hydro-salpinx, hæmato-salpinx, or pyo-salpinx, whether unilateral or bilateral, treatment should be begun by dilatation and curetting of the uterus, in the hope that by this the escape of the fluid from the tubes into the uterus may be promoted. If this fail, the surgeon should divide the mucous membrane circularly around the

cervix ; dissect upwards, securing the vessels by forceps as he goes on ; and then open the tube at its lower part, between the folds of the broad ligament, let out the fluid, and drain the sac. If more exact preliminary diagnosis be wished, the anterior and posterior peritoneal cul-de-sacs may be opened, a finger put in each, and thus the volume, mobility, and consistence of the tumours ascertained. If the swollen tubes are not too fixed, they may be pulled down, examined, and removed if necessary, tying the broad ligaments. If both tubes are diseased, it will be simpler and better to remove the uterus at the same time. Removal of the tubes and ovaries alone gives a less chance of cure than when the uterus is removed as well. The appendages atrophy after removal of the uterus, but the uterus does not always atrophy after removal of the appendages. When the tubes are adherent it is much easier to strip off the tubes by the vaginal method after the uterus has been removed than by the abdominal method. If bits of the tube are left behind, this does no harm, because drainage favours their progressive elimination. In tube-cysts of great size, in which the dissection out of the cyst was very difficult, Péan has stitched it to the vagina and drained it. *Tubercle* of the tubes may present itself in various forms ; if it is suspected, the diagnosis should be made more certain by opening the posterior cul-de-sac and exploring the parts with the finger. Then the tubes should be drawn down, examined, and removed if diseased. If there is doubt as to whether the disease affects the uterus, its removal will not add to the risk and will diminish the chance of recurrence.

(3) *Ovarian tumours*.—Ovaries which are prolapsed, painful, and tender, or inflamed, or cystic, can be dealt with in the same manner as diseased Fallopian tubes—viz., by opening the posterior cul-de-sac, feeling the diseased part, pulling it down, tying the pedicle and removing it ; or, in the case of a fixed cystic ovary, opening the cyst, stitching it to the vagina, and draining it.

(4) *Tumours of the broad ligaments* (abscesses, cysts, tubercular masses, sarcomata, and lipomata).—Surgeons have always recognised the propriety of opening abscesses through the vagina, but have been often deterred by the fear of bleeding. Pressure-forceps make this difficulty disappear. When there are multiple abscesses on both sides, the effect of removing the uterus is marvellous. Calm is restored as if by enchantment ; fever ceases ; appetite, strength, and spirits come back with astonishing rapidity. Cysts of the broad ligament can be easily opened and drained by the vagina while they are small. In tubercular disease the diseased tissue should be scraped away. If it spread from the uterus or tubes,

the whole of the internal genital organs should be removed. Péan has seen patients from whom he has removed and scraped out by the vagina tubercular growths in the broad ligament, who have soon recovered strength and lost their pain. Other tumours, if taken when small, can be removed by the vagina without difficulty.

(5) *Disease of the pelvic peritoneum and adjoining parts*.—The same principles apply to these diseases as to those that have been mentioned. Pus can be let out. In pelvic peritonitis due to disease of the uterine appendages, the best result is got from removal of the whole internal genital organs per vaginam.

Dr. Jacobs (*Arch. de Toc.*, 1891, p. 910), who is an ardent follower of Péan in this matter, thus very clearly describes the steps of the operation:—

(1) “De-insertion” of the cervix, *i.e.*, separation of the vagina all round from the cervix.

(2) Liberation (in front and behind) of a segment of the uterus.

(3) Hæmostasis (by pressure-forceps) and division of a corresponding segment of the broad ligaments.

(4) Division of the uterine segment into two valves (anterior and posterior).

(5) Section or excision of these valves.

Usually, in liberating the uterus purulent collections will be opened. The cardinal rule is, not to operate blindly; always to *see* the structure about to be divided. If the fundus uteri is so fixed by adhesions that it cannot be pulled down, no inconvenience results from leaving the upper part of the uterus behind. If during the “morcellement” of the uterus purulent collections are not opened, pus must be sought for, either by removing the uterine appendages or by pushing the finger into suspicious swellings. If the appendages can be pulled down with forceps they must be tied and removed. If they are held by solid adhesions, the collections of pus may be simply opened. In non-suppurative salpingo-oophoritis, or in collections of pus that can be enucleated, Jacobs still prefers laparotomy.

This proposal has met with very outspoken criticism by **Dolérís** (*Nouvelle Arch. d'Obst. et de Gyn.*, 1891–2) and by **Le Dentu** (*ibid.*). The former, in a series of papers, urges “conservative therapeutics” in disease of the uterine appendages. In his first paper he speaks, as he himself says, “with a somewhat brutal frankness.” In the first place, the cases in which the operation is said to be specially suitable—cases of inflammation not merely of the appendages, but of the peritoneum and cellular tissue around the uterus—are very rare, and in them the

operation is extremely difficult and dangerous. The total *published* mortality is about 13 per cent. But Doléris says this is not all. He has heard of four cases of death from *hæmorrhage*. It may be said that this was from slipping of badly-applied forceps, and not a danger inseparable from the operation. But in these cases it is very difficult to apply forceps to the bleeding points. *Vesical fistulæ* are too often the result of this operation, and too lightly treated by its advocates. The *ureter* may be crushed or cut open. No one contests that *perforation of the rectum* is very frequent and often impossible to repair. It has been said that an exact knowledge of the position of the ureter will enable the surgeon to avoid it. This is true when the parts are in a normal condition. But in the cases under discussion the parts are often displaced by inflammation and its results; and this fact renders injury of ureter, bladder, or rectum often unavoidable, however careful the surgeon may be. As to the claim that peri- and para-metric abscesses are by this operation necessarily opened and drained, Doléris has known pockets of pus discovered on autopsy which the operator, in spite of his care, had not touched. Lastly, the patients submitted to this operation who recover are not all cured, and some of the published "cures" have been prematurely put on record. The statistics hitherto published are valueless, except that they show the mortality to be high. The cases from which the 13 per cent. estimate that has been quoted are derived, include cases in which the uterus was removed for catarrhal salpingitis, small ovarian cysts, and the like. Cases of old sup-puration and induration, of multiple abscesses, of adhesions so close and dense as to make the removal of the appendages by laparotomy very dangerous and useless, are rare. Doléris says: "I could cite a good number of cases in which I have been asked to perform laparotomy or hysterectomy by *confrères* who, in perfect good faith, carried away by the general perturbation of ideas on the subject of pelvic inflammation, thought that the cure of their patient was only in a radical operation. Great was their astonishment at my refusing to interfere, and greater still at the happy and complete results of conservative treatment." Doléris considers that minor gynæcology has reached in France a degree of perfection that he has seen nowhere else. He treats salpingo-oophoritis by repeated dilatation of the cervix, curetting of the body and cervix, and drainage. The *dilatation* should be gradual, prolonged, repeated, and extreme. If the mucous membrane of body or cervix is unhealthy, it should be scraped with the *curette*. Lastly, the uterus is *drained* by stuffing it with antiseptic gauze. Doléris thinks that extreme dilatation is beneficial, because in

the expansion of the uterus the tubal orifices are made larger. He is not unmindful of the fact that many cases of pelvic inflammatory lumps get well with simply expectant treatment, for he publishes a series of cases terminating in this way.

The paper is interesting, for I think most physicians in England are very chary of dilating the cervix when pelvic inflammation is, or has been, present. Doléris's cases show clearly that when proper antiseptic precautions are taken, there is no great risk attending it, and therefore that when we find tubal disease coexisting with disease of the endometrium, we may and ought to begin by putting the uterus into as healthy a state as possible.

Grammatikati (*Vratch*, 1892, No. 1, quoted in *Brit. Med. Journal*, Oct. 1, 1892) calls in question Péan's statement that after removal of the uterus the uterine appendages atrophy. He says that when the uterus is removed and the ovaries are left behind, the menstrual molimen, which cannot find its natural relief, becomes very trying. The ovaries do not atrophy. He has examined the ovaries of a woman who died at the age of 43, three years after the uterus had been removed. The ovaries were quite normal and full of follicles, some ripening or breaking.

To remove the uterus for the sake of opening an abscess seems to me an unnecessary mutilation, but the principle of opening pelvic collections of pus from below, when practicable, I think a very sound one; and I can imagine that if the lower part of a thick cervix be cut away the satisfactory drainage of an abscess through the vagina may be easier, and the patient none the worse, but I cannot perceive the advantage of taking away the whole uterus.

I refer next to the recommendations of some less polemical in their methods of controversy than Doléris, who have sought to dissuade us from Péan's practice and to improve our methods of vaginal evacuation of pus.

Le Dentu (*Arch. de Toc.*, May, 1892) says: "Incision is a very old mode of treatment of pelvic suppuration, including pyo-salpinx, and yet it has been so decried and disdained at the period when laparotomy tended to invade gynæcological therapeutics that surgeons who, like Laroyenne of Lyons and Bouilly of Paris, have tried to rehabilitate it, seem almost to have newly invented it. As a general rule, the condition which renders the puncture or incision of an abdomino-pelvic purulent collection possible, is its adhesion to the abdominal wall or the vaginal cul-de-sacs. If the abscess visibly points in one of these directions, its evacuation is easy. If it is not in immediate contact with the

vaginal cul-de-sac, it must be sought by separating the mucous membrane round the cervix uteri and breaking down the tissues extensively by tearing them, until two or three fingers can be got into the purulent collection." This is, in fact, almost Péan's operation, minus the removal of the uterus. But to do it, it is necessary that the abscess and its position should be diagnosed. If this is doubtful, it is better to wait until the physical signs become definite. In some cases of tubal distension, dilatation of the uterus by tents is followed by emptying of the tubal contents into the uterus. Dilatation should be prolonged during several days and carried to the greatest possible extent. If these milder measures fail, what are the objections to laparotomy? There is its danger; if the uterus is surrounded with abscesses it is insufficient; it leaves untouched the morbid states of the uterus that originally set up the disease; and it leaves a scar and liability to ventral hernia. But it is less dangerous than vaginal hysterectomy, the mortality of which in such diseases Dr. Le Dentu estimates from published cases at 1 in 8; and it permits exact diagnosis to be made. Cases in which there are multiple abscesses surrounding the uterus are very rare. It is true that after laparotomy the uterus may remain diseased, and then hysterectomy may be beneficial; but to apply conclusions drawn from such exceptional cases to a large number is to fall into evident exaggeration. If uterine disease persists, it can be treated after laparotomy. Le Dentu, therefore, still prefers laparotomy to hysterectomy.

6. On liberating pelvic effusions by the vagina.

Dr. Goullioud, of Lyons (*Arch. de Toc.*, Aug., 1891), writes on the mode of attacking pelvic effusions practised by Prof. Laroyenne, of that city. He urges its adoption in preference to abdominal section, on the grounds of its less danger and its leaving to the patient still a chance of pregnancy. The vaginal route has been objected to on the ground of its difficulty. Laroyenne's method has so simplified it as to meet this objection. Another objection is that as the diseased tubes and ovaries are left, the whole disease is not removed. To this Goullioud replies that not every pelvic effusion depends on tubal disease, and it is impossible before operation to distinguish those that do from those that do not. And if the seat of a purulent collection be the tube, Laroyenne's results show that to open such a collection is enough to cure the patient. Good results have also been attained by laparotomy in cases in which the uterine appendages have not been removed. It is worth while to preserve the ovaries, if only to permit the patient the gratification of hoping for maternity. The small risk of Laroyenne's method is shown by Goullioud's figures—130 cases,

with one death, this being from the bursting of an abscess into the peritoneum. It is applicable to tubal dilatations, to serous or purulent collections in Douglas's pouch, to retro-uterine hæmatoceles, or parametric abscesses. A tumour of the size of an orange or larger, fixed behind the uterus, is the indication for it. It consists in first puncturing the tumour with a specially-constructed trocar and cannula, the peculiarity of the instruments being that the cannula has a longitudinal slit in it, into which a metrotome can be passed. The tumour having been punctured and the fluid reached, the metrotome is passed in along the trocar as a guide, and then a free incision made. Hæmorrhage is stopped by stuffing a sponge (I translate literally) astride the incision. After the incision has been made, other purulent cavities that there may be are broken into as thoroughly as possible. Forty-eight hours afterwards the sponge is removed, and replaced by packing with iodoform gauze. The gauze packing is changed once in eight or ten days. By the time the third dressing is done, the cavity has usually contracted to a diameter of one or two centimètres. In very large purulent collections, more frequent dressings, or daily washing out of the cavity, may be needed; but this must be done with great care, for the walls of a large cavity are apt to be friable. Goullioud has never known the bladder or ureters injured. This will not happen if the rule is observed always to approach the disease from behind, whether it seem to be posterior or lateral. To avoid injury to the bowel, the finger should be kept in the rectum during puncture and while breaking down the walls of other abscesses.

The removal of diseased tubes and ovaries is a confession of failure. The ideal surgical treatment in such cases would be an operation which should cure the disease without destroying the function of the parts. I quote next an able, original, and valuable paper, which seems to me likely to lead to a distinct step forward.

7. The conservative surgery of the uterine appendages.

Dr. W. M. Polk (*Amer. Journal of Obst.*, 1891, p. 1039) has led the way in this new path by trying to cure surgically certain diseases of the tubes and ovaries without removing the organs.

(A) In six cases of occluded and distended Fallopian tubes, Dr. Polk simply opened up the closed abdominal ostium. The result was good in three cases, bad in one, in two unknown. This operation Dr. Polk regards as faulty in principle. The ends of the tubes, owing to the action of the drainage-tube, were soon covered with granulation tissue, and in consequence speedily closed. Hence trouble is likely to be reproduced.

(B) In four cases Dr. Polk removed the dilated end of the tube, leaving the ovary. The result was good in three, unknown in one. This proceeding seems to me to be good surgery, provided that the ovaries are healthy.

(C) In nineteen cases the operation was limited to separating the tubes and ovaries from adhesions. Among these were four failures and one unknown result. Dr. Polk thinks that these failures do not invalidate the claim of this operation to a place among our resources, because like failure also occurs after removal of the appendages. [I am unable to understand how, after the adhesions have been torn through, the formation of a new set of adhesions is prevented. Cases in which this operation is enough to cure I should have thought would have recovered without it.]

(D) Cases of ovarian enlargement, treated by laying open the ovary, emptying cysts, and stitching the parts together again. Three cases, all successful.

(E) Cases of painful ovaries, treated by stitching the round ligaments to the anterior abdominal wall. Four cases, good results in all. This is a new and, I think, sound practice.

(F) Cases of enucleation of ovarian cysts. This is a good practice when it can be done, but must be only seldom practicable.

Some operators seem to think that the successful removal of the diseased parts is a successful result. The two following papers should, together with the papers quoted in last year's "Year-Book" (p. 331), make medical men hesitate before acting on this hypothesis in advising their patients.

8. The remote results of removal of the uterine appendages.

Dr. W. T. Lusk (*Amer. Journal of Obst.*, 1891, p. 1298) has written a paper on this subject, important not only from the author's experience, but from the sobriety of his judgment. He admits, to begin with, "that the removal of diseased ovaries and tubes is followed in very many cases by the relief of local pain"; that the removal of pus collections, whether in the tubes or ovaries, eliminates a source of danger to life; that "when properly performed, the dangers of the operation, *quoad vitam*, are small, not to be weighed for a moment against the terrors of chronic invalidism." He ignores in this paper the question as to how far such cases can be cured by "time and the procedures of minor gynecology," and simply tries to answer the question, Supposing the operation to be successfully done, what will be the subsequent history? The central event is the cessation of the menses. This happens in about 86 per cent. of cases. Dr. Lusk calls this "the

central event," because with the disappearance of the menses the woman has lost the most distinctive sign of sexual activity. With it the uterus becomes small, the vagina narrow and smooth. Often the vaso-motor disturbances usually occurring with the climacteric in these cases remind the patient that it has been reached early. The sexual appetite is in some cases unimpaired, or even for a time increased; in others sensibly weakened, and in others abolished. The young woman who has been deprived of her ovaries cannot marry without an explanation. If marriage takes place, "both husband and wife will have to struggle against the sadness and depression incident to a childless old age." Dr. Lusk thinks there is at least doubt whether inflamed and thickened tubes always involve permanent sterility, and that most cases of tubal swelling yield to unheroic treatment. Other consequences of successful operations have been admitted by Mr. Lawson Tait—suppurating fistulous tracts; fistulous communications between the bladder and intestines; hæmorrhages between the folds of the broad ligament; and pelvic pains not always relieved. Lusk further mentions ventral hernias. "The performance of normal ovariectomy for epilepsy and insanity is to be regarded as hardly better than malpractice." "The extent and frequency of serious mental change as a consequence of removal of the uterine appendages is another question that calls for very careful investigation. Reports of operators differ widely. Glævecke noted depression in eleven out of thirty-three; Lusk in nine out of twenty-six. Dr. Lusk's general conclusion is embodied in the following sentences: "The more the question is studied the more clear it becomes that the loss of her ovaries does make a difference to a woman. . . . It cannot be too often repeated that the successful removal of an organ is not a triumph of art, but a confession of defeat."

9. Fæcal fistulæ following laparotomy.

Dr. A. Palmer Dudley (*Amer. Journal of Obst.*, Feb., 1892) has collected valuable information as to this unpleasant sequel of abdominal sections. He has collected seventy-four cases. The two great causes appear to be (1) injury in the separation of adhesions between bowel and the part removed, by which sixty out of seventy-four were accounted for; and (2) the use of rigid drainage-tubes. Sixty-one of the seventy-four were drained, and in twenty-six the operator directly attributed the fistula to the tube, while in only eighteen was the claim made that the tube did not influence the formation of the fistula. Dr. Dudley also blames the use of catgut for sutures, but he adduces no evidence in support of this opinion. Thirty-nine of the seventy-four healed under medical

treatment—that is, rest, prevention of flatulence or bowel distension, and irrigation. He has been unable to find sufficient information as to the details of the surgical treatment of these fistulæ to enable him to draw any general conclusions as to the methods best to be employed. Eight were treated by operation, three successfully, with three failures and two deaths.

The advance of abdominal surgery is not limited to the treatment of disease of the uterine appendages. I give next an abstract of three valuable practical papers. Their scope is described by their titles.

10. Abdominal section in septic peritonitis.

Dr. Barton Cooke Hirst contributes to the American Gynæcological Society's *Transactions* (vol. xvi., p. 461) an important paper on this subject. After quoting the wild assertions made by certain abdominal surgeons as to the number of lives that might be saved if this operation were frequently performed, and opposing statements by others, Dr. Hirst says, "The reason for the radical difference of opinion in regard to the efficacy of abdominal section for septic peritonitis after childbirth, appears in a careful study of the reported cases. 'General suppurative peritonitis,' 'purulent peritonitis,' 'diffuse suppurative peritonitis,' all cured by abdominal section, as they appear by title in medical journals, will be found on close investigation to be, in the vast majority of cases, nothing of the kind. Case after case will disclose itself as a localised collection of pus, with perhaps recent leakage into the general peritoneal cavity: . . . a peritonitis that may be called benign, that has a conservative object in limiting a suppurative or septic invasion of the abdominal cavity, that is not in itself septic, and that disappears with marvellous rapidity when the cause is removed. This peritonitis is very different from the true diffuse suppurative variety, in which there is no limitation, . . . in which the whole abdominal surface is absorbing the poisonous products of microbe activity." Of eight operations of this kind done by Dr. Hirst only one was for true diffuse suppurative peritonitis, and this ended fatally. "In true diffuse suppurative peritonitis an abdominal section is almost always perfectly useless, and only serves to torment the last moments of the patients, to cause the family added anxiety, and to throw discredit upon surgery." "The favourable cases of limited suppuration in the abdominal cavity . . . are seen when the septic invasion of the peritoneal cavity occurs at one spot of small area, and without a long previous illness: . . . a small rupture, or perforation of the uterus, the extension of a septic endometritis through the tubes to their

peritoneal extremity, and necrotic or septic processes in pelvic tumours of all kinds, the results of childbirth, are usually the causes of limited suppuration within the abdomen, and furnish the cases in which an operation often yields brilliant results." Two questions are suggested: (1) Is it possible before operation to distinguish between a localised suppurative or septic peritonitis, with general peritonitis of a benign character; and a true diffuse suppurative peritonitis? In the first form the development of serious symptoms is gradual; it is days and even weeks before the necessity for operation becomes evident; there is always time for a trial of medicinal treatment. The course of diffuse suppurative peritonitis is very rapid. The pulse from the first is rapid and feeble, and the face has a drawn and anxious look. There may be fever, great distension of the abdomen, intense pain, dulness on percussion, and early delirium; but each and all of these symptoms may be absent. There are cases in which diagnosis is difficult—cases of diffuse suppurative peritonitis coming on insidiously and running a course of six to eight days, and consisting of the local suppuration united with intense general peritonitis. (2) Is it necessary to urge an operation in the one case, and refuse it in the other? If the case is seen late and the patient is in a desperate condition, or if the signs of general suppurative peritonitis are plain, operation is useless and should not be done. If the suppuration be localised the patient may be rescued; if we are in doubt whether the suppurative peritonitis is local or general, we should give the patient the benefit of the doubt and operate. If one sees an undoubted case of general septic peritonitis early enough, having in mind the bare possibility of success from an operation as shown by a very few reported cases, the abdomen should be opened to give the patient the only chance for life. Strain a point in operating early. If diffuse suppurative peritonitis is discovered, rapidly explore all portions of the abdominal cavity with the whole hand, followed by the irrigating-tube. Put in four rubber drainage-tubes, one in the upper portion of the cavity, two in the lumbar hollows, and one in Douglas's pouch. Pin the wound together with safety-pins that transfix the tubes. As little ether should be given and as little time consumed as possible. Dr. Hirst quotes from four different sources statistics which, when added up, total as follows: for suppurative peritonitis 115 operations, thirty deaths, eighty-five recoveries; for septic peritonitis three operations, two deaths, one recovery; for puerperal peritonitis eleven operations, nine deaths, two recoveries. [May not "giving the patient the benefit of the doubt" sometimes mean letting her alone?]

11. Ascites from a gynæcological point of view.

Gusserow (*Arch. für Gyn.*, Bd. xlii.) writes a very valuable clinical paper on the treatment of ascites in women not dependent on the usual causes of peritoneal dropsy. In these cases examination shows complete absence of disease of the lungs, heart, liver, or kidneys. In such cases he urges that tapping is a great mistake. It tells nothing of the nature of the disease, and so helps in no way to its right treatment. It does not give the maximum of relief, for by it the belly cannot be perfectly emptied. The right course is to make an incision large enough to admit two fingers, and thus to thoroughly empty (and I may add, if necessary, wash out) the belly, and at the same time exactly ascertain the condition of the principal parts within it. If done with due care, this is not more dangerous than tapping.

Gusserow then enumerates four classes of disease which clinically come under this category. They are (1) ascites dependent on tubercular disease of the peritoneum. Although we do not yet entirely understand this disease, yet we know that by simply opening and emptying the belly, many such cases are perfectly cured. (2) Ascites caused by papilloma of the ovaries. Here a sufficient incision and exploration will enable early diagnosis to be made, which will lead to the removal of the fundamental disease; while mere tapping would leave the doctor in ignorance until the growth of the tumour forced it upon his attention, and by that time the removal of such a mass might be difficult or impossible. (3) Ascites due to cancer of the ovary or the peritoneum. In cancer of the ovary, if the disease is to be removed, it must be done very early. It is only treatment of the ascites by exploratory incision that can make this possible. Waste of time by tapping allows the cancer to invade other parts. In cancer of peritoneum the incision does no more harm than tapping. (4) Lastly, some cases of ascites seem to depend on disease of the ovary of a non-malignant kind—fibroma or cystoma. Here again, although the injury from the delay which tapping induces is less evident, yet the patient is clearly benefited by being, in consequence of the knowledge gained by exploratory incision, cured sooner than she otherwise would have been.

Richelot (*Arch. de Toc.*, 1891, p. 676), in an article on exploratory laparotomy, gives the same good advice as Gusserow, and puts it with admirable clearness. "Tap, with deliberate intention, a case of ascites without tumour, the cause of which you know; but distrust exploratory tapping. It is a blind proceeding, which gives vague information, does not complete the diagnosis, and prevents immediate effective action. It is more

dangerous than people think, for the patient is exposed to the escape of various kinds of fluid into the peritoneum. I am often terrified at the aplomb with which doctors launch themselves, with their heads down, across coils of intestine and collections of fluid, purulent or other." "A small incision which gives access to every corner of the abdomen is a simple and easy thing." "The incision is nothing if done properly. Danger begins with intra-peritoneal manœuvres, when they are complicated or prolonged." And there is such a thing as *exploratory curative laparotomy*.

The last paper bearing on abdominal surgery which I refer to is important as being the most complete account that has yet appeared of a very rare condition.

12. Peritoneal myxoma.

| **Strassman** (*Zeit. für Geb. und Gyn.*, Bd. xxii.) has collected the published cases of the rare disease, usually following the removal or rupture of an ovarian cyst, to which **Werth** gave the name of "pseudomyxoma of peritoneum," but for which Strassman thinks "peritonitis pseudo-myxomatosa" more appropriate. In this disease the abdominal cavity contains free jelly-like masses of myxomatous tissue; similar masses adherent to the peritoneal covering of the bowels, some having a cyst-like appearance; and in some cases there has been myxomatous degeneration of the omentum and of the subserous connective tissue. Strassman has collected thirty-six cases. Only a few of these have been examined microscopically, and the results in these few are very discrepant. Strassman thinks there are three possible explanations of the conditions present:—(1) development of bits of the original cyst left in the abdomen after the operation; (2) adhesion and growth of myxomatous tissue escaping into the belly at the time of rupture of a cyst; (3) myxomatous degeneration of peritoneum. Some cases may arise from a combination of these processes. Against the view that it is a secondary disease of the peritoneum is, in Strassman's opinion, the fact that some of these cases recover and recurrence does not take place. As there are always adhesions, he thinks the name should express the fact of inflammation. It is commonest between the ages of 40 to 60, and in multiparous women. It does not appear to exert any influence on menstruation. It grows fast, the abdomen reaching a great size within six or twelve months. Fluctuation is sometimes present, sometimes not. With our present scanty knowledge the condition cannot be diagnosed with certainty. If tapped (which ought not to be done) no fluid runs. The prognosis is bad, most patients having died soon after laparotomy; but of the later

cases more have recovered, partly because operation was earlier resorted to, partly because septic infection was more certainly avoided. Of those who recovered, in only a minority was convalescence smooth. Twelve of the cases followed rupture of ovarian cysts. The author gives a full bibliography.

II.—DISEASES OF THE UTERUS.

The subjects on which papers have appeared during the year which claim attention are—uterine hæmorrhage, from fibroids and other causes, cancer, and backward displacements.

I take first the treatment of uterine hæmorrhage and bleeding fibroids. The papers and discussions which I quote add to our knowledge if not to our resources.

13. Hydrastinin in uterine hæmorrhage.

Czempin (*Zeit. für Geb. und Gyn.*, Bd. xxiii., S. 221) states his experience with this drug. Hydrastinin is the alkaloid extracted from *Hydrastis canadensis*. It was given by the mouth, in capsules, about 1 grain of hydrastinin hydrochlorate for a dose, during the excessive hæmorrhage which it was desired to stop. Forty-eight cases are related. In twelve the bleeding was from disease of the uterine appendages, in nineteen from endometritis, in four from fibroids, in the rest from other causes. In twenty-six of the forty-eight cases the bleeding seemed distinctly influenced by the drug, ceasing in from twenty-four to thirty-six hours after its administration. It acts, not on the muscular fibres of the uterus, but on the vessels. It is, therefore, not suited to post-partum hæmorrhage. It has no disadvantageous effects. Dr. Falk, L. Landau, Gottschalk and Bunge agreed with Dr. Czempin in thinking hydrastinin a remedy of great value, especially in cases of hæmorrhage not due to any discoverable organic disease in the uterus. Dr. Veit, however, pointed out the difficulties in the way of drawing sure conclusions as to the effect of remedies, and stated that his own experience of hydrastinin had been disappointing. He thought it a remedy upon which reliance could not be placed.

14. The electrical treatment of fibroids.

This treatment has been discussed in Berlin. Schaeffer (*Zeit. für Geb. und Gyn.*, Bd. xxiii., s. 229) read a long paper about it. His conclusions were based on forty cases. The following are the results:—Fifteen cures, the word "cure" meaning disappearance of the symptoms. In one case a fibroid was expelled. One patient after eight years' sterile marriage became pregnant. In most of the cases the first effect of the treatment was to increase hæmorrhage

and cause pain, and then, after some weeks, improvement in health began. Six greatly improved; three slightly improved; five no better; five decidedly worse, including one in which the diagnosis was erroneous, the supposed fibroid being an ovarian cyst. In the remaining six, the patients would not persevere with the treatment. The effect of the current, Dr. Schaeffer says, is threefold:—(a) Catalytic, producing absorption; (b) it makes the uterus contract; (c) its chemical and caustic effect destroys the mucous membrane. The antiseptic precautions, of which so much is made by Apostoli, Schaeffer thinks are (1) superfluous, (2) ineffective, (3) often injurious. Diminution in size of the tumour he never observed. In sub-mucous and polypoid tumours Schaeffer advises against electricity. The essential factor is the caustic action.

Brose (*ibid.*, s. 270) contributed a paper based on thirty-five cases. Out of twenty-five cases in which hæmorrhage was present it was lessened in twenty-three, but in four of them returned when the treatment was left off. In three cases there was considerable diminution in size; in two slight. His conclusion is that electricity will not replace surgical treatment, but that it is preferable to medical treatment or to curetting.

Nagel (*ibid.*, s. 280) stated his experience, comprising thirty-two cases, which led him to regard electricity as nothing but a symptomatic treatment. The idea that we had entered on a new electrical era in which fibroids were to be made to disappear, has not been realised. He found neither disappearance nor considerable diminution of the fibroids. In one case he had to resort to curetting to stop hæmorrhage, after electricity had failed. He generally found improvement as to pain, and in the general condition. He tells his patients that it is a treatment which will not take away the tumour, but which, if continued for several weeks, will relieve pain, bleeding, and discharge, at least for a time. But when hæmorrhage is great, he prefers the curette.

Mackenrodt (*ibid.*, s. 288) submitted an account of sixty-six cases—thirty-six of his own, thirty reported by others. His conclusion is quite adverse. The result was improvement in only twenty-one, an indifferent result in fifteen, patient made worse in twenty-three, and six deaths. He compares his results in a table with those of Keith and others, and estimates the death-rate at 4·4 per cent., while that from operative treatment he puts at 5·1 per cent. Operative treatment, when not fatal, means complete cure; electrical treatment, when not fatal, only benefits a minority. [These last statements were opposed by Brose, who put the operative mortality at 25 per cent., and denied that after laparotomy patients were invariably restored to health.]

Gusserow, in the discussion that followed, said that in his clinic no case of cure by the Apostoli treatment had been observed, and very seldom permanent benefit. The supposed cases of disappearance of myomata under this treatment were probably cases of erroneous diagnosis, for every one of experience knew how difficult it sometimes was to distinguish pelvic inflammatory exudations from fibroids. The only indubitable effect of electricity was its cauterising action on the mucous membrane. It was a very complicated and tedious method of cauterising. The use of the curette and ordinary caustic was more certain. The only cases in which Apostoli's treatment was called for were those in which the uterine cavity was not accessible.

The set of papers to which I next call attention seem to me of great practical importance, as containing a mass of evidence showing (1) with how great success uterine cancer can be treated, as compared with cancer in other parts, (2) the extreme importance of early diagnosis, and (3) facts which in my opinion support the view that removal of the cervix only gives results as satisfactory (when the cancer is in the cervix) as removal of the whole uterus.

15. Total extirpation of the uterus for cancer.

Gusserow (*Berlin Klin. Woch.*, 1891, s. 1125) expresses his settled opinion that in every case of malignant disease of the uterus total extirpation of the organ is indicated, and the only question is whether and when this is practicable and rational. Supra-vaginal amputation of the cervix he rejects absolutely. Success in the operation he thinks very little dependent upon technique, but chiefly on the proper selection of cases: that is, on the early performance of the operation; on early diagnosis. It must be done while the disease is limited to the uterus, so that in the operation we have to deal with healthy tissues. Modifications in the operation having for their object to enable the operator to remove diseased cellular tissue, glands, etc., Gusserow does not consider improvements. The early diagnosis of malignant disease of the uterus is not so difficult as many people think. The reason why so many cases do not come to specialists until the disease is too advanced for treatment is not because diagnosis is difficult, but because sufficient attention is not paid to the early symptoms. Patients often think that hæmorrhage, if not accompanied by pain, is of no importance, and medical men sometimes go on uselessly treating what they take to be erosions; and thus when a skilled adviser sees the patient, the disease is too advanced for cure. The less the extension of the disease, the easier the operation and the better the prognosis. It is not difficult to decide whether or not the

disease is limited to the uterus. It ought to be possible to pull the cervix down to the vulva. If this can be done, there cannot be much disease of the cellular tissue ; if it cannot be done, the case is unsuitable for operation. It is true that by adopting this rule a few cases will be dismissed as hopeless in which the fixation is due to perimetric adhesions and not to extension of cancer ; but until our means of diagnosis are improved, this cannot be helped. To accurately determine the mobility of the uterus, the patient should be examined under anæsthesia.

Out of 1,350 cases of cancer seen by him during a period of nine years, Gusserow has operated in seventy-one, or one in nineteen. Abdominal hysterectomy was done in four, with three deaths ; vaginal in sixty-seven, with seven deaths, or 10·4 per cent. Of the sixty who recovered, in ten only six months have elapsed since the operation ; in twenty-three relapse has occurred ; sixteen are living and well ; eleven cannot be traced. The longest period that has passed without relapse among these cases is eight years. The attainment of better results, in Gusserow's opinion, depends upon the general practitioners. If they make a point of carefully examining every patient who complains of abnormal hæmorrhage, and sending at once for treatment every doubtful case, more and more cases will be cured.

16. The results of operations for malignant disease of the uterus.

Krukenberg (*Zeit. für Geb. und Gyn.*, Bd. xxiii.) writes an important paper on this subject, based on 924 cases operated on in Berlin from 1880 to 1891. The average proportion of malignant disease to patients in general was 3·7 per cent. Of cases of malignant disease 31·6 were suitable for operation. These were composed of 91·7 per cent. cancer of cervix, 6·2 per cent. cancer of body, 1·9 per cent. sarcoma of body, and ·1 per cent. sarcoma of vaginal portion. The operations comprised 235 vaginal extirpations, forty-four supra-vaginal amputations, and thirteen laparo-hysterectomies.

Krukenberg takes the different forms of disease separately. Vaginal extirpation was performed in 197 cases of cervical cancer, with 25 deaths, or 12·7 per cent. Nineteen of the deaths were from sepsis, two from hæmorrhage, the remainder from causes not dependent on the operation.

The next table I quote is as to the date of relapse after total extirpation for cancer of cervix. The percentages are calculated from the numbers known to be living and well at the end of the year to which the figure refers. The following are the percentages for the different years :—

Relapse had not occurred at the end of the 1st year in 58·5 per cent.

"	"	"	"	"	2nd	"	44·7	"
"	"	"	"	"	3rd	"	37·5	"
"	"	"	"	"	4th	"	29·5	"
"	"	"	"	"	5th	"	17·6	"

Dr. Krukenberg next informs us of the results in the *different forms* of uterine cancer. He divides the cases into seven groups, and they run in the following order. The figures indicate the percentage of relapses :—

			No. of cases.
1. Early cancer of the cervical canal	... 33·3 per cent.	...	3
2. Flat "cancroid" of the vaginal portion.	36·4 "	...	11
3. Small cauliflower excrescence of the vaginal portion	... 42·4 "	...	26
4. Advanced cancer of the cervical canal...	58·8 "	...	17
5. Cancer nodules in the substance of the cervix	... 60·0 "	...	25
6. Large cauliflower excrescence of the vaginal portion	... 62·5 "	...	16
7. "Cancroid" of vaginal portion deeply ulcerating into substance of cervix	... 80·0 "	...	5

He also gives another table, comprising larger numbers, but comprising cases not watched so long. This seems to me less valuable, therefore I do not quote it. The table given shows the enormous importance of early diagnosis. Krukenberg has not observed a recurrence after five years, and he therefore thinks that the lapse of this time without recurrence warrants the assertion that the patient is cured. Cases have been recorded by others of relapse in the sixth, seventh, and eighth year; but these cases are so few that he thinks them hardly of practical importance. He compares the results in patients of different ages, and comes to the conclusion that recurrence is rather more frequent in women under 45 than in those over 45, but that the difference is not great.

Cancer of the body of the uterus was much oftener seen in time for operative treatment. The death-rate after vaginal hysterectomy in these cases was 10 per cent. The percentage of those free from relapse, calculated in the same way as the cases of cervical cancer, was the following :—

Recurrence had not taken place at the end of 1 year in 69·2 per cent.

"	"	"	"	"	2 years in	81·2	"
"	"	"	"	"	3	"	69·2
"	"	"	"	"	4	"	63·6
"	"	"	"	"	5	"	66·7

The prognosis after operation is therefore considerably better

in cancer of the body than in cancer of the cervix. Krukenberg could not trace any influence of age or parity in producing relapse.

The cases of sarcoma in his paper are so few in number that I do not think the statistical tables worth extracting. They point to the conclusion that the prognosis after operation in sarcoma of the body is not so good as in carcinoma. The average age of patients with sarcoma and carcinoma of the uterine body was about the same, and was rather higher than that of patients with cancer of the cervix.

Krukenberg quotes from other sources statistics which put the average mortality of vaginal extirpation of the uterus at 11·6 per cent. On account of the different ways in which statistics are compiled, he finds it impossible to base conclusions as to the frequency of recurrence on any figures other than his own.

Krukenberg's paper concludes with some figures, based on rather small numbers of cases, as to the more detailed subsequent results. He finds that in the majority of cases slight troubles, such as accompany the climacteric, occur either at the time at which menstruation would have occurred or at other times. Sexual feeling is seldom altered. Recurrence takes place with about equal frequency in the scar and in the cellular tissue, less frequently in other parts. Pain is the most frequent indication of recurrence, less often bleeding, discharge still less frequently. Total extirpation of the uterus as a palliative measure, when complete removal of the disease is impossible, shortens rather than prolongs life. The author concludes by saying that cancer of the uterus is no longer a disease before which the doctor must lay down his arms.

17. The early diagnosis of uterine cancer.

G. Winter writes an important paper on this subject (*Berl. Klin. Woch.*, 1891, s. 809). He says that total extirpation of the uterus is now looked on as the most trustworthy measure. The present mortality he puts at 8·4 per cent. (estimated from 474 cases published by different operators); but this mortality, he thinks, may be reduced. Some cases of peritonitis, from infection of the peritoneum by decomposing tissue and pus, he thinks must always occur; but deaths from hæmorrhage or damage to the ureter he thinks improved technique will abolish. The mortality of supra-vaginal amputation he puts at 6·5 per cent. This is computed from 155 cases, since which there have been sixty-four cases in the Berlin Klinik without a death. He thinks this, therefore, an operation with but little risk. The proportion of "cures" is difficult to judge, because we have to watch the cases so long. But if five years without relapse may be held long enough

to justify us in calling a case "cured," about 25 per cent. of the cases have remained free from disease for this period. But the operation is not practicable in all cases. Of all cases applying for treatment, in only about 28 per cent. can the disease be removed, so that only about 7 per cent. of cases of cancer are cured. But during the last fifteen years the proportion of cases applying early for treatment has been increasing; and this increase has been more marked in cases coming from Berlin than in those coming from the country. This is due to better diagnosis. In illustration, Dr. Winter mentions that his assistant has gone into the histories of sixty-two patients. Six of these came at once to the hospital, and of these four were suitable for operation, or 66 per cent. Forty-seven went to general practitioners, and of these only 32 per cent. could be effectively treated. Of the forty-seven twenty-six were examined and straightway sent to hospital, and these furnished 38 per cent. of cases for operation; six were "tinkered" locally by their doctors, and treatment was available only for one, or 17 per cent.; and the remaining fifteen were not examined, 20 per cent. of these proving fit for operation. Nine others went to midwives, two of whom were sent to hospital and proved fit for operation. Having thus shown the importance of early diagnosis and the need for information on the subject, Dr. Winter considers the symptoms which are usually the early symptoms of cancer. *Discharge* is almost always an early symptom, although often disregarded because it is so common from other causes. It is especially frequent in cancer of the vaginal portion. It is generally watery, so that patients who have suffered from leucorrhœa will often mention the change in character of the discharge. A watery discharge may be caused by polypus as well as by cancer. Its being occasionally mixed with blood is very suggestive of cancer. Its early appearance makes this a very valuable indication for examination. *Bleeding* is not so early a symptom as discharge; its irregularity in time, its occurrence after the climacteric, and more especially the occurrence—which is very frequent—of hæmorrhage with coitus, are the points chiefly characteristic. *Pain* is a comparatively late symptom. Far too much attention is paid to the *age* of the patient—the disease may occur at almost any age. The earlier we see the patients the more important becomes the *microscopic examination* of an excised piece. Dr. Winter, however, does not go into this.

18. The results of supra-vaginal amputation for cancer of the cervix.

Dr. W. H. Baker (*Amer. Gyn. Trans.*, vol. xvi., p. 152), writing on the results of high amputation of the cervix, emphasises,

like Winter and Olshausen, the extreme importance of early diagnosis. Out of 139 cases seen by him, only twenty-eight could be surgically dealt with; and out of 305 cases published by Reamy, in only fifty-five was there hope of success from treatment. Dr. Baker asks why is it that so few cases are seen early enough for a radical operation? The answer is, that pain, as a rule, is absent till comparatively late, and hæmorrhage and leucorrhœa are considered by the patient as conditions to be expected at the menopause; and, secondly, that the general practitioner is too frequently inclined to delay radical measures until he has wasted valuable time with useless remedies. Dr. Baker performed high amputation of the cervix in ten cases between 1877 and 1882. Of these five remained well for ten to twelve years. Between 1882 and 1889 Dr. Baker operated on sixteen cases. All recovered from the operation; ten lived from two to ten years without recurrence. Six died from recurrence, the intervals being from five months to six years. Dr. Baker very strongly urges the free application of the actual cautery to the stump of the cervix after high amputation. Unlike the German authorities quoted, he thinks that even though the disease has extended somewhat laterally and thus interfered with the free mobility of the uterus, the operator should not be discouraged. He also recommends securing the vessels in the broad ligament with twisted silver ligatures, the advantage being that if the ligature gets loose it can be easily tightened by giving it an additional twist.

19. A deodorant for uterine cancer.

Dr. G. W. Kaan (*Boston Med. and Surg. Journal*, April 7, 1892) recommends an injection of about an ounce of peroxide of hydrogen and an equal quantity of water, warmed by being placed in a pan of hot water, and injected through a soft rubber tube so as to reach the back of the vagina once or twice daily. He finds this very effective as a deodoriser in the offensive discharge of cancer; and in one case its use appeared to be followed by improvement in the disease.

20. Squamous epithelioma of the uterine body.

Benckiser (*Zeit. für Geb. und Gyn.*, Bd. xxii.) reports an unusual form of secondary cancer of the uterine body. The patient was aged 59. She had cancer of the cervix, which was eaten away into a cavity filled with breaking down matter, but the parametria seemed free. The uterus was removed, and two years afterwards the patient was still in good health. On examination of the uterus, the cancer was found to extend upwards above the internal os. Above the cancerous ulceration the endometrium seemed everywhere present, but it was not

smooth. It presented little elevations of the size of a lentil or less, so that its surface looked finely granular. On section, while the uterine tissue looked like a network of deep red lines, these little hillocks were of a pale flesh-colour, and more opaque and cloudy-looking. Springing from the fundus was a small flattened polypus. The endometrium was everywhere about $\frac{1}{8}$ th of an inch thick. The muscular tissue and the peritoneal covering appeared unaltered. On microscopical examination the cervix presented the ordinary appearances of cancer. Sections through the little granulations in the body of the uterus showed the cylindrical epithelium proper to the uterine body changed into a covering formed of from four to six layers of epithelial cells of different sizes, with large nuclei of oval, polygonal, or flattened shape, and the regular cubical epithelium was present in some places. The author refers to descriptions of similar changes by Ruge, Hofmeier, and Williams. He suggests that the age of the patient, by leading to atrophy of the glands of the endometrium, may be important as favouring this spread of cancerous change along the surface epithelium; and further, that this state of things is probably only a temporary stage. These two things—the limitation to patients of advanced age and the temporary nature of the change—explain why it is so seldom met with.

I exhibited a similar specimen to the Obstetrical Society of London (*Transactions*, vol. xxxiii., p. 31), and then pointed out the difficulty of distinguishing clinically between this form of cancer of the body of the uterus and senile endometritis. The fact of cancer of the body sometimes beginning in this way—that is, as a finely granular condition of the lining membrane—is a reason for removing the whole uterus in any case in which the condition of the interior of the body is at all doubtful.

21. The operative treatment of backward displacements of the uterus.

The ingenuity of operators continues to be directed towards devising a satisfactory method of correcting bending back of the uterus by putting stitches in the fundus so as to pull it forward. In last year's "Year-Book" the work of Schücking in this direction was quoted. The Obstetrical Society of Berlin has discussed communications by Dührssen and by Mackenrodt, each of whom claims to have perfected an operation in principle like that of Schücking, but each of these operators thinks his own method the best. Dührssen (*Zeit. für Geb. und Gyn.*, Bd. xxiv., s. 368) makes a transverse incision through the vagina in front of the cervix, then separates the bladder from the uterus, holds the uterus in a position of antecurvature with a sound, and then sutures it to the

vagina. In one of his cases sutures were afterwards discharged through the bladder, so that it is evidently an operation that needs to be carefully done. Mackenrodt (*ibid.*, s. 315) makes a longitudinal incision along the anterior vaginal wall, and turns back two lateral flaps, thus giving himself a good view of the parts to be dealt with, and then lifts forward the bladder and stitches the anterior uterine wall to the vagina. Braithwaite (Leeds) described to the British Medical Association at Nottingham a similar operation devised by himself; but his paper is not yet published.

All this ingenuity is based on the hypothesis that in cases of backward displacement of the uterus, the bending back of that organ is the important pathological element, and that descent, and the condition of the patient's muscular and nervous tone, are subordinate features. If it be the fact that, as I believe, the symptoms depend, in the majority of cases, on the state of the patient's nervous system, in a smaller number on the presence of descent, and only in a few exceptional cases on the fact of bending backwards, then these operations will not be of great use.

Glaeser (*Cent. für Gyn.*, 1892, No. 21) relates a case and experiments on the cadaver which show that the mode of operation proposed by Schücking brings with it danger of injuring the bladder or ureters. He therefore says, rightly I think, that this operation is discredited.

22. Alexander's operation.

Mundé (*Amer. Journal of Obst.*, 1891, p. 1286) expresses his opinion of this operation as follows:—"In properly selected cases (retroversion and retroflexion, with more or less descensus and relaxation of the upper and lower uterine supports, with perfectly movable body of the uterus and appendages, and no enlargement of either) I consider the operation of shortening the round ligaments to be the best, most permanent, and least dangerous of all those which have been recommended, and I base this statement on what I consider my own ample personal experience."

I am disposed to agree with Dr. Mundé, but I believe cases of backward uterine displacement requiring surgical treatment are very rare.

23. Retroversion and retroflexion of the uterus and sterility.

It is commonly stated that retroversion and retroflexion of the uterus are among the causes of sterility, but no proof has ever been furnished, nor has any attempt at proof or at testing the statement by facts hitherto been made. I have published (*Obst. Trans.*, vol. xxxiii., p. 499) an investigation of the

point, based on 3,641 cases. Comparison of cases with and without displacement lead me to the following conclusions :—(1) Backward displacement of the uterus has no appreciable effect in the production of *absolute* sterility (that is, marriage within the child-bearing age followed by no pregnancy—no child, no abortion, however early). (2) Backward displacement of the uterus is associated with a small amount of *relative* sterility (that is, early cessation of child-bearing, the patient not producing children in number proportionate to her age and length of married life). (3) That this relative sterility is chiefly in the later years of the child-bearing period. These facts, at least, dispose of the mechanical theories of the production of sterility by displacements, for mechanical causes act alike at all periods of life, and should produce absolute as well as relative sterility. The sterility is probably due either to the constitutional state which produces the displacement or calls attention to it, or to changes in the uterus slowly produced by the persistence of the displacement.

24. Retroversion and retroflexion of the uterus and abortion.

It has been also accepted without proof that retro-deviations of the uterus cause abortion—it has even been said that they are the *great* causes of abortion and of habitual abortion. I have (*ibid.*) investigated this point, and a statistical comparison of cases with and without displacement shows the following :—(1) Backward displacement of the uterus has no appreciable influence in the production of *habitual* abortion. (2) It is associated with a tendency to abortion, but in extent of influence as a cause of abortion it is far inferior to many other causes. (3) The tendency to abortion, like the relative sterility, is greatest in the later years of the child-bearing period.

25. The effect of backward displacement of the uterus in prolonging hæmorrhage after delivery, and abortion.

This effect has been hitherto taken for granted without demonstration. I have published evidence (*Obst. Trans.*, vol. xxxiv., p. 14), based on 3,641 cases, that (1) backward displacements of the uterus are more common in parous women than in nulliparæ; (2) that they are met with, or at least give trouble, especially frequently soon after delivery or abortion; (3) that they are more frequent among those in whom delivery or abortion has been followed by prolonged hæmorrhage than in others; (4) that prolonged hæmorrhage after delivery or abortion is more frequent among women with backward displacements than in others.

The two following cases are important, as emphasising the need for caution in intra-uterine treatment :—

26. Death from intra-uterine injection of perchloride of iron solution.

Pletzer (*Cent. für Gyn.*, 1892, No. 18) relates a case of retroversion of the uterus with endometritis, treated by injection of Liq. Ferri Perch. with the result of producing venous thrombosis and death in two hours and a quarter.

27. Dangerous symptoms from intra-uterine injection of tincture of iodine.

Gördes (*Cent. für Gyn.*, 1892, No. 25) relates a case in which the injection of about $7\frac{1}{2}$ minims of Tr. Iodi into the uterine cavity was followed immediately by severe pain, with small quick pulse, anxious face, pallor, difficult breathing, and tetanic spasms. Morphia was given, and in the course of the day the symptoms gradually got better.

I next cite two papers on morbid conditions which are very rare, and about which we therefore know very little.

28. The pathology of the round ligament.

Martin (*Zeit. für Geb. und Gyn.*, Bd. xxii., s. 444) has collected the scanty literature relating to diseases of the round ligament, and relates two cases from his own experience. The only indisputable cases are cases of fibromata collected by Säger and of hæmatoma by Gottschalk. Martin's two cases are the following :—One was in a girl, aged 19, who admitted sexual excesses. She had hæmorrhage, pain, and a tumour the size of a duck's egg by the side of the uterus. The tumour was supposed to be a dilated tube, and laparotomy was done. The tubes and ovaries were quite healthy, and the tumour was a circumscribed swelling of the round ligament. The tumour was incised, and found to contain a cavity full of sanious pus and detritus. The cavity was emptied, its walls were scraped with a sharp spoon, and brought together with sutures. The patient got well. Martin regarded the case as hæmatoma of the round ligament, and excessive sexual excitement as its probable cause. His second case is a less clear one. He removed from a woman, aged 70, a cyst containing 12 litres of thin chocolate-coloured fluid. The fluid contained cholesterine, and was lined by columnar ciliated epithelium, these facts suggesting that it was parovarian in origin. But the cyst distinctly sprang from the round ligament ; it had no distinct connection with the broad ligament, and the tube and ovary were quite separate from it and were healthy. Martin admits that the problem of its origin is one of great difficulty.

Hasenbalg (*Zeit. für Geb. und Gyn.*, Bd. xxiii., s. 54) relates a case of fibro-myoma of the round ligament in a virgin, aged 58. It was of the size of a goose's egg. It could be felt to be connected with the uterus by a pedicle, and also with the inguinal region. It appeared to be movable quite independently of the uterus, but to be tethered to the inguinal region, the inguinal pedicle being only half the length of the uterine one. Until the abdomen was opened, it was supposed to be a solid tumour of the left ovary. The tumour was found covered with the layers of the broad ligament, the ovary lying in a distinct meso-ovarium behind it, and the round ligament losing itself in it. It was easily enucleated. The patient did well. The tumour showed but little vascularity, and in the middle of it were some calcareous concretions.

III.—DISEASES OF THE VAGINA AND EXTERNAL GENITALS.

These papers relate to new growths, and the last one describes an ingenious operation for the cure of vesico-uterine fistula, which has also been applied to vesico-vaginal fistulas.

29. Vaginal cysts.

Rutherford (*Obst. Trans.*, vol. xxxiii., p. 354) has written a valuable paper on this subject, and appended to it a full bibliography. His conclusion as to treatment (which I fully endorse) is that excision of a rounded piece of the cyst wall is the easiest, safest, and most reliable of all operative measures; and is applicable alike to all cysts, whether superficial or deep, large or small. The size of the piece cut out must depend upon the size of the cyst. Bleeding can be easily stopped. The lining membrane of the sac wall left behind gradually becomes indistinguishable from that of the rest of the vagina. Enucleation is difficult; there is generally free hæmorrhage: it is a method far too serious and dangerous for such a disease, and "should be classed as meddling gynæcology."

30. Primary sarcoma of the vagina.

Dr. Kalnstow, of Moscow (*Arch. für Gyn.*, Bd. xl., s. 499), relates a case of this rare disease, prefacing his account with a list of cases previously published by others. He has not, however, made any comparison, analysis, or summary of the cases quoted. His patient was aged 23. Attention was called to the growth by its causing great hæmorrhage. When examined, it was found covered by a greyish-black crust, and there was a foul discharge. The parts were kept clean, and in a month this crust

came off. After separation of the crust, there was seen healthy-looking mucous membrane, across which ran a fissure, $\frac{1}{8}$ of an inch wide. The tissue exposed in this fissure was greyish-red and friable. The author remarks that the case is interesting, not only on account of the rarity of sarcoma, but also on account of the occurrence of sloughing and hæmorrhage. He thinks it probable that the sloughing was a result of thrombosis.

After separation of the slough, secondary growths appeared, described as dark-red, rounded, very soft, and very movable round tumours, very like knots of dilated veins. Later on they became firmer, more irregular, and began to suppurate. The patient died, but there was no *post-mortem*.

Microscopic examination showed that the structure which preponderated was that of round-celled sarcoma.

Comparing this case with one reported to the Obstetrical Society of London by Dr. Lewers (*Trans.*, vol. xxviii.), in that also will be noticed the vascularity and tendency to hæmorrhage both external and into the tumour—the larger tumours greenish-black in colour, the smaller dark purple. This great vascularity and tendency to hæmorrhage into the tumours is an important point in diagnosis between sarcomata and fibromata.

31. Sarcoma of the urethra.

Ehrendorfer (*Cent. für Gyn.*, 1892, No. 17) relates a case of this rare kind of growth, and quotes from *Beigel* the only similar case hitherto recorded. The tumours in each case seem to have much resembled caruncles, except that they were larger, being as big as a walnut, had a greater tendency to bleed, but did not cause so much pain.

32. Lupus of the vulva.

The pathology of this disease—which I think had much better be spoken of as “*esthiomène*,” a word which implies no theory, while lupus implies relationship to lupus vulgaris—is discussed in an interesting paper by Viatte (*Arch. für Gyn.*, Bd. xl). “*Esthiomène*,” as used by Huguier, who introduced the term, includes all cases of chronic ulceration complicated with hypertrophy of tissue; and different causes may produce these effects. Thus Hardy thought that Huguier had included phagedenic chancres. Dr. Matthews Duncan’s cases were thought by Hutchinson to be syphilitic. Duncan pointed out that in lupus vulgaris there is destructive metamorphosis of tissue, while in lupus vulvæ there is organisation of fibrous tissue, and that the disease often began during pregnancy. Martin thought it often due to chronic, neglected gonorrhœa. Hypertrophic, polypoid growths, like those of lupus vulvæ, are never seen in lupus vulgaris. Besides these

clinical differences, later research has shown lupus vulgaris to be a result of the bacillus tuberculosis—in fact, a local tuberculosis. Histological investigations into lupus vulvæ have shown, with one exception, neither the tubercle bacillus, the regressive metamorphosis, nor the giant cells that are characteristic of tubercular disease. The exception is a case examined by **Birch-Hirschfeld**, in which caseation and giant cells were found, but not the tubercle bacillus. More recently, the inoculation of Koch's fluid has given us a better means of identifying tubercular disease. Dr. Viatte relates two cases, in each of which the local disease had all the clinical features of esthiomène. Drawings accompany the paper, so that the reader can convince himself on this point. In the first case there was ulceration, with polypoid outgrowths. It was treated twice by operation: the outgrowths being first cut off and the ulcerations cauterised, and subsequently the ulcerated parts excised. Examination of the excised parts revealed the presence of tubercle bacilli. The patient, whom the previous treatment had not cured, was again admitted into hospital and Koch's fluid injected. The characteristic reaction followed, and with it the production of cough and inflammation of the nasal mucous membrane. The treatment was continued for three months, but no considerable local improvement resulted. The second case was treated in the same way, first by cutting away outgrowths and cauterising. But no tubercle bacilli could be found in any of the excised pieces. There was no syphilitic history, but, nevertheless, antisyphilitic treatment was tried, without effect. Finally this case was treated by the injection of Koch's fluid, but no result whatever followed.

The author's conclusion is, that lupus of the vulva, or esthiomène, is a term of purely clinical significance, denoting a condition that may be produced by several different causes.

33. The vesical operation for utero-vesical fistulæ.

Kleinwachter (*Zeit. für Geb. und Gyn.*, Bd. xxiii.) relates a case of fistula between the bladder and cervix uteri cured in a novel way. Attempts at repair by the ordinary methods had failed. Kleinwachter therefore first removed the ovaries (to put an end to pelvic congestion), then closed the peritoneal cavity, and opened the bladder below the peritoneum, cutting through the pyriformis muscles in order to get room. Then he repaired the fistula in the ordinary way from its bladder side. The bladder was then stitched to the abdominal walls, and a drainage-tube put in the abdominal opening. Strips of iodoform gauze were put into the cellular tissue on each side of the bladder. The operation lasted an hour. The result was perfectly successful so far as repair of the fistula was

concerned, but there was suppuration in the pre- and para-vesical cellular tissue, and the wound in the bladder was not healed when the patient was discharged two months after operation. She was told to report herself, but neglected to do so.

The next subject upon which I am able to refer to papers of interest is that of congenital malformations, which are instructive both from a practical and physiological point of view.

34. The treatment of absence of the vagina.

In cases in which the vagina is absent, different advice may be given from different quarters as to the best treatment. The most complete cure is, of course, the making of a new vagina, but some high authorities (among them the late Dr. Matthews Duncan) hold the success of such operation to be so doubtful that they think tapping by the rectum is preferable.

Dr. C. P. Strong (*American Gynecological Transactions*, vol. xvi., p. 473) relates a case in which the only genital canal apparently present was a dilated urethra. On careful examination, an opening which would only admit a small probe was found in the posterior wall of the enlarged urethra, and through this opening the menstrual blood came. Dr. Strong formed a new vagina by dissection between the urethra and the rectum. The operation was a difficult one; but after it had been done, there was no difficulty in keeping the new vagina patent. Coitus took place through it, and was not attended with pain.

Dr. Florian Krug (*ibid.*, p. 439) presents the argument against such operations—on the ground of their danger, the liability of the new canal to close again, and the small importance of providing a copulative canal and its unworthiness as an object.

35. Fallopian menstruation.

Landau and Rheinstein (*Arch. für Gyn*, Bd. xlii.) record three cases of atresia of some part of the genital canal, which have important bearings on the question whether in ordinary menstruation the tubes bleed or not. In one case the vagina was absent. The uterus was quite normal, there was no hæmato-metra, but double hæmato-salpinx. In another, there were multiple fibroids, with hæmato-salpinx on one side. In a third, a double uterus with closure of the right half, hæmato-metra and hæmato-salpinx on the right side, but no communication between tube and uterus. The authors have carefully examined the mucous membrane behind the atresia, and they come to the following conclusion:—In malformation of the genitals, whether atresia or deficient union of the lateral halves, the mucous membrane is normally developed. Retention of menstrual blood causes the uterine epithelium to gradually undergo pressure atrophy, but that of

the body of the uterus has a surprising power of resistance. The tubal mucous membrane has at first a great power of resorption, which is at length exhausted, and then it submits to the effect of pressure. Blood in the tubes has been hitherto regarded as getting there by reflux from the uterus. Objective proof that the tubes menstruate has as yet not been supplied. These cases, in the author's opinion, supply this proof. In one there was blood in the tubes without any sign of bleeding in the uterus; in the other blood in the tube which could not be squeezed into the uterus.

I think that from various quarters there has come abundant proof that bleeding into the tubes, independent of pregnancy, is not infrequent, although as yet we know little about its causes.

36. A third ureter.

Dr. Paul Baumm (*Arch. für Gyn.*, Bd. xlii.) relates a case of this rare malformation, cured by an ingenious operation. The patient, aged 18, complained of continuous dribbling of urine. On each side of the urethra was an opening. That on the left was a blind canal about an inch long. From the right opening urine was flowing in drops. Exploration with the sound showed that the canal went up to the kidney, and that an expansion of it about half-way up the vagina formed a sort of accessory bladder, situated between the bladder and vagina. The amount of urine flowing through this abnormal canal was less than $\frac{1}{5}$ th of that poured into the bladder. The inference followed that only part of the urine secreted by the right kidney escaped through this third ureter. Dr. Baumm first put a temporary ligature round the third ureter, to see if, when its passage was blocked, the urine would not flow into the bladder. But in a couple of days the ureter became distended, and the patient had renal pain. Dr. Baumm therefore decided to make a communication between the third ureter and the bladder. He opened the bladder above the pubes. The abdominal incision measured 12 c.m. ($4\frac{3}{4}$ in.), the vesical incision about half the circumference of the bladder. The openings of the two normal ureters were seen. Then the third ureter was distended with water, and a piece the size of a penny cut out from its dilated part, below the openings of the normal ureters. The borders of this new opening were secured by nine silk sutures. Then from the vagina the third ureter was tied below the opening that had been made between it and the bladder. Finally the bladder was sewn up with two rows of sutures, one through the bladder wall, avoiding the mucous membrane, the other a Lembert suture of the peritoneum, the pre-vesical space plugged with iodoform gauze, and the abdominal walls brought together, with the exception of space for the gauze drain to lie in.

The patient recovered well. The bladder wound healed by first intention. The suture round the lower part of the ureter was removed after four weeks. Five months and a half after the operation the patient passed a soft concretion having a silk thread as its nucleus. She also had a ventral hernia as large as a child's head. But there was no incontinence of urine. The author has been able to find only two similar cases on record. He regards the third ureter as the remains of the Woolfian duct on that side. The paper contains a full bibliography of the subject.

Lastly I cite two papers on the very difficult subject of functional disorders.

37. Olshausen (*Zeit. für Geb. und Gyn.*, Bd. xxii.) read to the Berlin Obst. Soc. an important paper on **the neuroses of the female genital organs**. These are: (1) **Hyperæsthesia of the vagina**, commonly known as "**vaginismus**." He does not regard this as often produced by fissures, inflammation, etc.; these latter are concomitants, not causes. In treatment he thinks removal of the hymen the most important thing, combined with cocain and the use of dilators. The lateral gashes recommended by Sims he has never made, nor has he tried galvanism. Much patience is required, and tonic and sedative treatment directed to the nervous system. (2) **Pruritus vulvæ**.—He does not consider pruritus due to discharges, uncleanness, diabetes, etc., as a neurosis. Neurotic pruritus occurs without any local disease. It may be so bad as to deprive the patient of sleep, almost to drive her to suicide; her health suffers from want of rest, while her medical man "often neither believes nor understands her unspeakable suffering." Olshausen can say nothing as to its ætiology, except that it is apt to occur about the climacteric and in fat subjects. He has seen it unusually often in Jewesses. When it has lasted long the vulva gets dry and inflamed from the friction which the patient cannot help resorting to. Mild narcotic applications are no use. Strong alteratives are the only means of good—carbolic acid solution, 3 to 8 per cent.; nitrate of silver, 10 to 20 per cent. These should be painted on the vulva (anæsthesia being sometimes needed), and afterwards a 10 per cent. cocain ointment applied. This may have to be repeated as many as six times or more. Alcohol and strong coffee should be forbidden. Slight cases may in this way be cured, and bad ones alleviated. (3) **Irritable bladder**.—He does not regard this as a neurosis when dependent upon organic disease either of the urinary organs, the uterus and its appendages, or the spinal cord. In the cases he speaks of there is no local disease of any kind. But he believes that in all cases it is a remnant

—a legacy—of past cystitis. The treatment is simple. The bladder must be emptied, and then a teaspoonful or two of a 7 to 10 per cent. watery solution of cocain injected into it, and the patient instructed to retain the fluid for half an hour or an hour. The rapidity of cure in this way is wonderful. Two or three injections are usually enough; longer than a week's treatment being hardly ever required. Out of several dozen cases Olshausen has only found this fail in one or two, and therefore he thinks that in them he must have overlooked some organic disease. The condition may relapse, but a repetition of the treatment will cure it. [I have not found this as successful as Olshausen has.]

(4) **Coccygodynia.**—Slight cases of this are common; it is often secondary to uterine disease. In severe cases Olshausen only knows of two measures that will cure: (1) "Circumcision" of the coccyx. With patient on her right side, the operator inserts his left forefinger in the rectum and then inserts a sharp tenotome under the skin covering the back of the coccyx, and with it detaches the soft parts from the back, sides, and apex of the coccyx, taking care not to wound the rectum. This is generally for the time effective, but in a week or two pain returns. In that case the second means must be tried, viz., extirpation of the coccyx, and this is a certain and permanent cure. Olshausen remarks that it is useless to try and close by sutures the wound left by extirpation of the coccyx—it must be left to heal by granulation. (5) **Uterine neuralgia.**—As to this, Olshausen has only to say that curetting, swabbing, and the use of intra-uterine stems are injurious. Relief comes with the climacteric.

38. Dr. Leonard (*Journal of Amer. Med. Ass.*, 1892, vol. ii., p. 36) says that the popular notion among singers that there is a huskiness of the voice at the time of the periods is well founded, and that the tone, pitch, and range of voice of female singers are seriously encroached upon whenever they have *any* disease of gravity affecting their sexual organs. He relates a case in illustration.

MIDWIFERY.

BY M. HANDFIELD-JONES, M.D. (LOND.),

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I.—THE PHYSIOLOGY OF PREGNANCY.

1. One-yolk twins and two-yolk twins.

In the *Zeitschr. für Geburt und Gynäk.* (vol. xxii., 1891) Rumpe points out that in twins developed from one ovum, and also in those developed from two ova, male children are in excess, but more especially in two-yolk twins. Two-yolk twins are most frequent in women between twenty-six and thirty. One-yolk twins are not rarely seen in women under twenty-five and in women over thirty-five. Two-yolk twins are commonest in multiparæ. One-yolk twins are always weakly in comparison with two-yolk twins, and this weakness seems primary, though increased by defective nutrition owing to the common placenta. The difference in weight between the twins is always greater in one-yolk twins. The heavier child is almost always born first in cases of one-yolk twins; in the other variety there is no such rule. Head presentations are more common in one-yolk twins, so are cross-births. This seems due to the greater mobility of one-yolk twins, owing, amongst other causes, to excess of liquor amnii. The same explanation applies to the presentation of the heavier child first. Abortion and premature labour are more frequent in one-yolk twins, and the intra-uterine death of one fœtus is three times as frequent as in two-yolk children. As is universally known, monstrosities and pathological conditions are extremely common amongst one yolk twins, whilst they are not more frequent in two-yolk twins than in single children. Hereditary tendency to twins is almost confined to the two-yolked variety.

2. On certain obstetric aspects of the pelvic peritoneum.

Stephenson (*Brit. Med. Journal*, March, 1892), under this title, contributes an interesting and instructive paper devoted to the study of the physical properties of the pelvic peritoneum. He recalls the researches of Polk and of Barbour, who have shown that in the

full-time pregnant uterus the peritoneum in front and behind has the same relations as in the non-gravid uterus ; whereas the peritoneum at the sides is lifted up by the growing uterus, so that the base of the broad ligament is on a level with the pelvic brim. From this Dr. Stephenson concludes that the ligamental portions of the pelvic peritoneum offer considerable and permanent resistance to stretching beyond the limits of their elasticity, and that the tension thus thrown on them is sufficient to undo their attachment to the pelvic walls. The peritoneum covering the uterus, however, instead of borrowing from neighbouring parts, undergoes a gradual yielding to an unlimited extent, growth supplying the additional material necessary to prevent thinning. This difference in the behaviour of the two portions at the same time points to a difference in their physical properties which has not hitherto been recognised. The author insists on the contrast between the unlimited expansion under the gradual increase in bulk of the ovum and the intolerance of the uterine peritoneum to a rapid dilating force, a contrast aptly illustrated in the history of the induction of premature labour by the rupture of the uterus owing to the injection of only a few ounces of water. The relations of the peritoneum above described the author considers as a provision to relieve it from the strain of rapid stretching and thinning out to which the lower uterine segment and cervix are submitted during the first stage of labour. This peculiar property of the uterine peritoneum of gradually yielding under a small but persistent force, while breaking under a sudden one, confers upon it something of a plastic character. The word plasticity, however, not accurately denoting the true nature of this property, the author prefers the expression "viscosity," a term borrowed from physics, and definable to suit the case in question. So far as the author is aware, it has never been suggested that the peritoneum plays an important part in the dynamics of labour, nor has the great extent and perfect character of the shrinking of the serous coat received the attention it deserves.

While the mucous membrane in the interior of the uterus is thrown into innumerable rugæ, the peritoneal covering, shrunk to a fifth or a sixth of its original bulk, hardly displays a fold. The author is careful to point out that the tension in the membrane is not the tension of ordinary elasticity, remarking that when an indiarubber ball is inflated the tension increases with the amount of expansion, while in the case of the uterus there is no evidence or reason to suppose that the tension of the walls is greater at the ninth than at the seventh month ; for a true analogy the author refers to the formation of the soap-bubble. Dr. Stephenson thus

sums up: "Such being the properties of the serous coat, it is evident that it must play a part in the dynamics of the uterus. It furnishes a part of the persistent pressure inside the organ. It is also capable of taking a share in the retraction of the uterus. Whatever be the state of the muscular fibres of the uterus when labour is over, they are surrounded and supported by an elastic capsule, with which any force tending to produce dilatation has to reckon. This idea is strongly supported by the anatomical fact that in the portion of the uterine walls where retraction is manifested the peritoneum is firmly attached, whereas the parts where no active retraction occurs have either no peritoneal covering or that membrane is but loosely attached thereto."

3. Retraction and viscosity of the uterus.

Stephenson (*Brit. Med. Journal*, May, 1892), in his second paper, applies to the consideration of the uterus some of the principles he discussed in connection with the properties of the pelvic peritoneum. He introduces the subject by stating that a clearer and more accurate conception of the uterus as a muscle is requisite before many important questions in midwifery can be satisfactorily settled. The one idea that has hitherto governed our conception of the phenomena of uterine action—that is, muscular contraction—is quite inadequate. "The idea is simple, but not sufficient." Amidst other objections to our confusing inconsistency of terms, he here very justly observes that the "so-called contraction ring persists after death, when no contraction can take place." On contraction doctors rely to check bleeding, and yet contractions last but a moment; and hæmorrhage is often absent though the uterus is flaccid. It is necessary to define distinctly another mode of uterine action which is not contraction—the energy known as retraction. While contraction will mean the temporary shortening of a muscle under discharge, retraction will indicate the condition where permanent shortening of the muscle has taken place. Can we realise retraction as distinct from and independent of contraction? Dr. Matthews Duncan says: "It is certain contraction does not necessarily imply retraction. That retraction is not dependent on contraction is difficult to prove." The way out of the difficulty, the author states, is to exclude for the time being all muscular tissue from the problem, and consider the uterus as a tissue obeying the same laws as its serous coat. In his previous paper Dr. Stephenson pointed out that the uterine peritoneum at the end of labour manifested the phenomena of retraction in a marked degree. It possesses the property of shrinking in a perfect manner. To produce this shrinking there must be a definite tension of the membrane, dependent in its turn

on the molecular forces resident in the tissues. This molecular tension or retraction is common to both the uterus and its serous investment, and is a function of muscular tissue quite apart from its contractility. This property of retraction resembles in its action that of elasticity, but it is different in its nature, and must not be confounded with ordinary elasticity. "It is a property of the uterine walls, whereby when freed from the expanding force—that is, the birth of the contents—the structure tends to assume the form which presents the smallest superficies consistent with the condition." It is different from elasticity in being a vital phenomenon like contractility, though the author remarks that there is no reason to prevent us from conceiving that it is due to the mutual action of the molecules upon one another, similar to that which produces the phenomena of molecular tension in many inorganic substances. Meanwhile, he adds, it is better not to complicate the subject by discussing whether or not this property is what physiologists speak of as "tonus." Retraction is not an expulsive force, except so far as fluids unconfined are concerned. After rupture of the membranes, the internal uterine pressure may expel some liquor amnii, but it cannot expel a solid—not even a clot of blood. This behaviour of the uterine walls, like a plastic substance, cannot be explained by the common ideas of contraction or retraction. Another property, that of viscosity, suggested by the author in his first paper, is necessary to complete our conception of the uterus. The ordinary idea associated with viscosity enables us to understand the plastic behaviour of the uterus in forming a mould of its contents, and explains the differences in the thickness of the walls at different parts, and the irregularity of the internal surface as contrasted with the smooth and regular outline of the external surface. The term, however, has another and different appreciation. The essential idea of viscosity is the nature of the resistance offered to a change of form, and has recently been employed, the author proceeds to tell us, to denote the retardation of elastic recovery in solids which is displayed by even the most elastic of bodies. It is defined, in fact, as molecular friction. The author points out in the summary that follows how retraction is influenced by the amount of viscous resistance in the tissues. There are, then, he states, three properties to be recognised in the uterus. First, there is *muscular contraction*, the result of the energy rendered kinetic by a stimulus. It is powerful but intermitting, lasting only for a comparatively short time. It is resident in the muscular tissue alone, and causes only a temporary shortening of the fibres. The force so derived is the only one that can reduce the bulk of, or expel, the solid

contents of the uterus. Secondly, the *molecular tension* of the tissues, whereby when free from disturbing influences they constantly tend to assume the smallest superficies consistent with the conditions. This property belongs to the serous as well as to the muscular coat. It gives rise to the continuous internal uterine pressure. And, thirdly, there is the *viscosity* of the uterus. It offers resistance to a rapidly-dilating force, and explains the unlimited yielding without rupture to a small but persistent force. It retards and for a time renders the action of retraction imperfect. Through it the internal surface under retraction presents a true mould of the contents. This conception of the uterus, the author adds, enables us to understand how in Cæsarean section, for instance, whenever the child is lifted out, the uterus retracts at once, often grasping a part of the foetus. This may take place when contraction has entirely ceased. So on removal of the placenta from an apparently inert uterus, the walls will retract and follow the hand as it retreats.

Dr. Stephenson further explains the justice of Matthews Duncan's remark, "It is retraction, and retraction alone, that is a safeguard against hæmorrhage," for when the last contraction that completes labour has passed off, when the uterus is less hard and somewhat enlarged, the only force present to counteract blood pressure is the molecular tension, not only of the muscular tissue, but of the serous coat as well. Fresh lines of inquiry are therefore opened up as to the causes that affect both contraction and retraction. Thus, does frequent or long-continued contraction increase the viscosity and so retard the action of the molecular tension? How far is the latter force increased or diminished by heat or cold? What is the action of ergot? What is the influence of chloroform or chloral on the tension, as distinguished from the irritability, of muscular fibre? These and other problems, the writer remarks, demand fresh inquiry, and will require time for careful investigation.

II.—THE PATHOLOGY OF PREGNANCY.

4. Subcutaneous emphysema during labour.

Greslou (*Annales de Gynécologie*, Oct., 1891) publishes a case of this rare accident, of which the following is a brief extract:—During the course of a prolonged labour, and concurrently with an effort made by the parturient during the expulsive stage, a sensation of "something giving way" was experienced by the patient—a healthy multipara, in whom there were no signs of phthisis. Directly after this the patient found that the right side

of her face was swollen. This swelling soon spread to the neck and the left side of the face. On palpation the characteristic crepitus of gaseous extravasation was obtained. No special treatment was carried out, and in the course of five or six days the whole thing cleared up and the patient made a good recovery. The author recalls the fact that the prognosis of this rare complication varies with the seat of the solution of continuity in the air-passages—being favourable when the seat is in the larynx or trachea, grave when it is situated in the pulmonary vesicles.

[It is of interest to note that this rare complication of labour generally occurs towards the close of the expulsive stage, and does not seem to be usually connected with previous disease of the air-passages.—ED.]

5. Rapid abortion, brought on by curetting, for grave cardiac affection.

Dolérís (*Annales de Gynécologie*, March, 1892) relates the case of a young woman, the subject since childhood of a grave lesion of the aortic valves, who, in spite of careful warning of the dangers incident on gestation, became pregnant. From the very onset of conception the cardiac affection became greatly aggravated—marked by continual dyspnœa, rapid hypertrophy, and marked displacement of the heart, syncope at each attack of vomiting, insomnia, etc., and at the end of two months extreme cachexia. In the presence of this grave condition, the author considered that it was absolutely necessary to interrupt the course of gestation, and on account of the profound anæmia, to adopt a method of intervention which would place the patient as soon as possible out of the danger of all hæmorrhage. Accordingly, instead of waiting for the uterus to expel its contents, as in the case of an ordinary induced abortion, he first dilated by means of laminaria tents, and then removed the whole of the ovum with the curette. The whole proceeding lasted less than thirty-six hours, and gave excellent after-results.

6. Accidental hæmorrhage during pregnancy and confinement.

Mdme. Henry (*Annales de Gynécologie*, Nov., 1891) publishes three cases of mixed and copious uterine hæmorrhage not due to a malinsertion of the placenta. The author, since her appointment as midwife to the Maternity Hospital, has noticed this accident twenty-seven times in 20,927 deliveries. Mdme. Henry disagrees with Jacquemier, who states that the uterine wall in these cases feels hard, because in all the cases noticed by her the uterus has always had a peculiar doughy feel: this sensation Mdme. Henry considers characteristic. Jacquemier states also

that the external hæmorrhage is of a vermilion colour. The author, on the contrary, lays special stress on its black colour, and syrupy consistency.

7. Curetting after abortion.

Charles (*Journal d'Accouchements*, Dec., 1891) considers that curetting of the uterus after abortion is indicated when a previously existing endometritis has been the cause of the abortion, also when it is necessary to remove the after-birth and this cannot be affected by the finger. Illustrative cases are published where the treatment has been successfully carried out.

8. Retrospective diagnosis of placenta prævia.

Budin (*Journal d'Accouchements*, May, 1892) points out that examination of the after-birth throws considerable light on the retrospective diagnosis of placenta prævia. If the placenta is normally situated, the tear in the membranes will be situated a considerable distance from the placental edge. If, however, the tear in the membranes runs parallel and close to the edge of the placenta, it is a proof that the placenta was situated low down. The existence, on the other hand, of a tear perpendicularly, and running up to or near the placental edge, does not throw any light as to the situation of placenta in the uterine cavity.

9. Prolonged gestation, with complete occlusion of the os externum.

Jardine (*Brit. Med. Journal*, May 7, 1892) records a case of complete occlusion of the external os in which the period of gestation lasted 304 days. The patient, a 2-para, menstruated for the last time on July 5, 1888, and on the 3rd of April, 1889, some premonitory labour pains induced her to summon medical advice. She was accordingly seen by Dr. Jardine that evening, who, at the request of the patient, refrained from an examination, simply directing that he should be sent for as soon as the pains became at all severe. They, however, ceased during the night, and for the next four weeks she remained tolerably free from them. Being again sent for on May 5, Dr. Jardine found her in labour. The head, presenting in the first position, was very high up, and no external os could be felt, the cervix was obliterated, and near the centre of the vaginal vault there was a depression between two small elevations indicating the position of the occluded os. An attempt to scrape through the obstruction with the fingernail failed. Under chloroform, another attempt with the fingernail failing, a small incision was made by means of a guarded knife and the wound dilated with a pair of narrow-bladed forceps sufficiently to admit the finger. A dense ring was then felt; this it was necessary to incise in several places, after which dilatation

was easily effected by means of the fingers. There was practically no hæmorrhage, and labour was terminated by forceps, the child—a large one—being born dead. Three months later the cervix felt quite normal, and menstruation was regular.

In his comments on the case, Dr. Jardine states that with some women prolonged gestation appears to be the rule. He considers that in this case occlusion of the os was the cause of the prolonged gestation. A warning is also given not to mistake a backwardly tilted os, which is out of reach, for this rare complication of pregnancy.

10. Professor Pinard's treatment of ante-partum hæmorrhage from placenta prævia.

This is taken from an article which appeared in the *Lancet* of May 28, 1892, which relates how, not content with the results of his previous treatment of hæmorrhage from a viciously inserted placenta, Professor Pinard now relies on the following procedure: The slight premonitory hæmorrhage is treated in the ordinary way by rest, opium, and antiseptic vaginal douches at a temperature of 118·4° F. Should, however, the hæmorrhage continue, one or two fingers, or even the whole hand—all due antiseptic precautions being taken—are introduced as far as the internal os, where the membranes are fully ruptured. A Champetier de Ribes intra-uterine bag is now introduced in a manner similar to the introduction of a Barnes' hydrostatic dilator, an improvement being effected, however, by the use of a pair of antero-posteriorly curved forceps, capable of being disjoined, in place of the ordinary introducer. The bag is maintained in position in the uterine cavity by the left hand, while it is slowly filled with about 400 grammes of water. "The distended bag, compressing as it does the detached placenta, arrests infallibly all further chance of hæmorrhage at the same time that it excites uterine contractions—the precursor of labour—after a brief delay, this delay being longer or shorter according to the degree of distension of the bag." [We would rather ascribe the arrest of hæmorrhage to direct pressure of the bag on the uterine sinuses themselves than to pressure on the detached portion of the placenta, which, except at the line of separation, does not bleed after detachment.] Professor Pinard relies on hot injections to check any post-partum hæmorrhage, discarding the use of ergot. This treatment was applied to seven cases, of whom six recovered without accident, the seventh dying of septicæmia, due to the presence of a degenerated uterine tumour. Of the seven fœtuses—four were born living and healthy, one was in a macerated condition, and two were stillborn.

11. Tetany in menstruation, pregnancy, and lactation.

Jaksch (*Wien. Med. Press.*, 1891) observed the characteristic spasms of tetany in a woman, aged 35, during the fifth month of pregnancy. She first noticed tetany, before a menstrual period, when 19 years old. The symptoms subsided, and did not reappear till eighteen months later, during her first pregnancy. The second and third pregnancies were free from tetany, but it reappeared during the fourth, and also the fifth, while she was under observation. This case was essentially chronic, and seemed to arise from some disturbance associated with extirpation of strumous glands, dyspepsia, pregnancy, and lactation. According to **Professor Schauta**, only a few cases of tetany in direct association with pregnancy have been recorded. **Meinert**, of Dresden, collected nine such cases in 1885. In one of these tetany appeared in the third and sixth pregnancies, at an interval of eight years. The symptoms increased towards the end of pregnancy, and ceased after delivery. **Müller**, of Berne, records a very instructive case—a patient, aged 45, who suffered from tetany from the age of 10 upwards, the attacks increasing greatly during her only pregnancy. **Trousseau** has seen forty cases of tetany during lactation, and about as many instances of this curious affection have been observed during menstruation.

12. Hypnotic sleep during delivery.

Oui (*Annales de Gynécologie*, Nov., 1891) gives details of a case of hypnotic sleep during parturition. The patient, in whom there was a marked hysterical history, was a primipara, aged 25. During her pregnancy hypnotic suggestion was successfully resorted to by **Dr. Doublet** for the cure of hysterical coxalgia. At the time of her confinement large anæsthetic areas were found on the backs of the hands and feet. Analgesic patches were also present on the inner sides of the thighs; the conjunctivæ, too, were completely analgesic. Labour commenced at nine o'clock in the morning, and at three o'clock in the afternoon, owing to the severity of the pains complained of by the patient, an unsuccessful attempt to hypnotise her was made by **Dr. Oui**. At nine o'clock in the evening, however, the dilatation being now complete and the child's head on the perineum, **Dr. Doublet** succeeded in hypnotising the patient by means of continued pressure on the closed eyelids. During the time that this pressure was maintained the patient, ceasing to cry out and with a placid expression on her face, obeyed perfectly all directions given to her, bearing down when told to and ceasing all effort with the same docility. In this manner the birth of the head was perfectly

regulated, and at a quarter past nine the patient brought into the world a female child weighing 6 pounds. On being awakened she was astonished to see her child, and declared that she had suffered no pain whatever. The third stage was rapidly terminated, and the patient made a good recovery. Dr. Oui, commenting on the case, calls attention to the failure in the attempt to hypnotise the patient during the first stage of labour, and contrasts this with the success obtained during the expulsive stage. This is contrary to general experience—the expulsive stage being that in which difficulty and failure generally occur, while susceptible subjects are easily, as a rule, hypnotised in the first stage of labour. Dr. Oui, indeed, in this case, makes some allowance, in that the successful attempt was brought about by the same individual who had previously hypnotised the patient, and in whom she would naturally have more confidence than in a stranger. With regard to the particular state of hypnotism in which the patient was, Dr. Oui considers her to have been in a state of “latent hypnotism,” the characters of which approached more closely to the lethargic than to the cataleptic or somnambulic states.

A third interesting point in the case is found in the method of hypnotism rendered necessary on this occasion, namely, the prolonged compression of the eyeballs—as a rule, a simple excitation of a hypnogenic zone being sufficient to induce the sleep.

III.—THE MECHANISM OF LABOUR.

13. Treatment of unreduced occipito - posterior positions.

Charles (*Journal d'Accouchements*, April, 1892) states that in 120 cases of occipito-posterior positions observed in his practice during last year, the occiput failed to rotate beneath the pubis in two cases, while in seven cases forceps were applied to produce the rotation and to terminate the labour. Charles is of opinion that the fear of rotating the foetal head through three-eighths of an inch with the forceps is groundless. Accordingly, after giving nature full opportunity, he does not hesitate to interfere to bring it about. He first applies the forceps on the biparietal diameter of the foetal head and in the direction of the suboccipito-mental diameter, the pelvic curve of the forceps looking forwards. He next carefully rotates the forceps till the occiput is beneath the pubis, and then either finishes the extraction at once, or else removes the forceps and reapplies them with the pelvic curve looking forwards before proceeding to extraction.

Prof. Charles also relates a case of unreduced occipito-posterior

position of the vertex in which he succeeded in rotating the occiput forwards by introducing his left hand into the vagina and grasping the child's head with the thumb on the anterior parietal bone and the four fingers on the posterior, after the manner recommended by Dr. Leviet. Prof. Charles considers that when it is necessary to interfere in a case of unreduced occipito-posterior positions, an attempt should be made, especially in a multipara, to rotate the vertex with the hand before resorting to a forceps rotation.

IV.—OPERATIVE DELIVERY.

So much has been written of late on Cæsarean section and the Porro operation, that it is useless to reopen this subject extensively at the present time. In symphysiotomy, however, our attention is drawn to an operation which has been only recently revived with success, and which promises to obtain a firm footing in obstetric practice. Any operation that offers a middle course between the much-detested craniotomy and the perilous abdominal section must of necessity attract the attention of the accoucheur and be worthy of his closest study.

14. Induction of premature labour by glycerine injections.

Pletzer (*Centralblatt. für Gyn.*, 1892) records satisfactory results in using this method. He employs chemically pure, sterilised glycerine. A hundred cubic centimetres are thrown up between the membranes and the uterine wall. Full precautions are taken not only against sepsis, but also against the entrance of air into the uterine cavity. In a short time regular pains set in. The membranes present well and labour is usually easy. In two cases where labour was induced on account of contracted pelvis, the pains set in in the first case within half an hour, in the second after an hour. In a third case the patient was at the end of the thirty-second week of pregnancy. For fourteen days she had been flooding; there was placenta prævia lateralis and a temperature of 104° . Glycerine was injected, and pains set in in an hour and a half. Bleeding occurred two and a half hours later. Turning was performed, and a dead child was delivered. The mother recovered. Glycerine injections are, in Pletzer's experience, valuable not only for the induction of premature labour, but also for accelerating delivery at term. In uterine atony it proves very efficacious.

[The method of induction by means of glycerine injections is undoubtedly of value, and has been tried with considerable success. Care is, however, needed lest air be forced into the uterus along

with the glycerine. Probably the best method is to introduce first a bougie in the ordinary manner, and to supplement this with the glycerine injection should uterine pains be slow in manifesting themselves.—ED.]

15. The principal methods of inducing premature labour.

Oui (*Annales de Gynécologie*, Dec., 1891), after summarily disposing of the older methods of induction (such as drugs, injections, etc.), turns his attention to the rival merits of the three following methods of procedure, which are at the present time in vogue in the French school of obstetrics, namely:—(1) The bougie of Krause, either employed by itself or followed up by the use of Barnes' hydrostatic dilators; (2) the intra-uterine bag of Tarnier, which acts as an excitor; (3) Champetier de Ribes' bag, which acts both as an excitor and as a dilator.

After relating cases illustrative of these three methods, and comparing the results obtained by them, Dr. Oui arrives at the following conclusions:—

(1) That Krause's bougie ought to be rejected except in cases of absolute necessity, as the labour which it determines progresses too slowly, and the children succumb in greater proportion than with the other methods.

(2) That in a case where induction of labour is indicated in a primipara or a multipara with a but slightly patent cervix, it is best to commence with the use of Tarnier's bag, and to follow this up with the intra-uterine bag of Champetier de Ribes as soon as the cervical canal will admit of its introduction.

(3) Where the cervical canal is from the first sufficiently patulous, Champetier's bag should be used from the outset.

(4) This is the more clearly indicated the more rapid the delivery required, and notably in cases of premature rupture of the membranes, where Champetier's bag introduced into the cavity of the uterus will suffice to bring on labour where Tarnier's bag will fail.

(5) Rupture of the membranes can be easily avoided in the introduction of Champetier's bag. Detachment of the placenta has sometimes taken place; but should this occur, all that is necessary to stop completely all hæmorrhage is to inflate the bag.

(6) The bag should not at first be completely filled, as in that case it rises above the brim, and not only fails to excite satisfactory uterine contraction, but also tends to produce a shoulder presentation.

(7) As changes in presentation are fairly frequent with

Champetier de Ribes' bag, a close watch should be kept so as to rectify them should they occur.

We may remind our readers that the advantages claimed for Champetier's bag over those in ordinary use are attributed to its relative inextensibility, and to the fact that it imitates as closely as possible the volume of the foetal head.

16. Six cases of craniotomy, with remarks on the relative positions of craniotomy and Cæsarean section.

Lewers (*Brit. Med. Journal*, May 20, 1892). Under this heading the *Brit. Med. Journal* reports the principal subject that engaged the attention of the May meeting of the Obstetrical Society of London. Dr. Lewers, founding his remarks upon the results of six personal cases of craniotomy and eighteen published by Dr. Donald, declared his preference in general for this operation over Cæsarean section. The mortality of craniotomy, he said, was extremely small, while Cæsarean section, in spite of all modern improvements, still remained a very dangerous operation. Cæsarean section should not be undertaken as a matter of election, but restricted entirely, or almost entirely, to cases where no other method of delivery was possible. The general tone of the discussion that followed, however, did not favour his views. The claim of the child to life is evidently a growing influence in these controversies. With one exception, the seven speakers who followed the reader of the paper supported the more extensive adoption of the alternative operation. Objection was taken to the series of cases reported by Dr. Lewers as an unsuitable basis upon which to raise the discussion in question, because, with one exception, these were cases where long and repeated efforts at delivery had diminished the probability of the child being alive; and for a dead child craniotomy was obviously the only operation to be adopted. With regard to his conclusions, however, it was pointed out that craniotomy was far from being so easy an operation as was generally supposed. Intra-uterine craniotomy, indeed, it was remarked, was one of the most dangerous operations in midwifery, especially in the lesser degrees of pelvic contraction where futile attempts at delivery by forceps had preceded it. Neither was the mortality from craniotomy as low as the author contended. Statistics of large numbers gave a mortality of 6 to 12·8 per cent., with which the statistics of Cæsarean section would compare very hopefully. Few children, again, grew up who were delivered through a pelvis of less than 3 inches, and many women after craniotomy were more or less crippled from lacerations and pelvic inflammations. The ethical view of the question

was also urged. Craniotomy was a ghastly operation, which one operator had performed much oftener in the past than he hoped to do in the future; while another declared that having once performed it on any patient and warned her of the risk she incurred by again becoming pregnant, he would only repeat the operation under protest, or decline altogether. This extreme view, however, did not meet with general acceptance. It was opposed by the opinion of a speaker evidently holding the views of the minority, who, admitting the principle that the child might be sacrificed in the interest of the mother, would adopt that method of delivery which gave the best chance to the mother, and would prefer craniotomy in all the ordinary cases of contracted pelvis, and Cæsarean section in those extreme cases that were very rare.

17. Cæsarean section.

At the March and April meetings of the Obstetrical Society a very interesting discussion took place on Cæsarean section. **Dr. Murdoch Cameron** (*Brit. Med. Journal*, March 12 and April 16, 1892) expressed himself strongly in favour of the Cæsarean section over the Porro-Cæsarean operation. His statistics of the former operation are eighteen cases with two deaths. The following is his method of procedure:—If labour has not commenced, it is induced, and the abdomen opened to the extent of 5 or 6 inches, any rotation of the uterus is corrected, and a small incision made in the middle line till the membranes, which must not be ruptured, are reached. The incision is next enlarged upwards and downwards with a bistoury, the hand introduced, and the child extracted. The uterus is then brought out and thoroughly emptied of placenta and membranes. The edges of the uterine incision are everted by an assistant, and deep carbolised sutures inserted. Any interference with the uterus after the operation by intra-uterine douches or by the introduction of a drainage-tube is strongly deprecated. Continuing the discussion, **Mr. Bland Sutton** considered that to produce sterility it sufficed to ligature each fallopian tube near to the uterus. **Dr. Champneys**, however, prefers first to ligature the tube simply, next to pinch up a portion of it, then tie this with the ends of the first ligature and cut off the loop thus formed. With regard to the choice of operation, **Dr. Duncan** is of opinion that Cæsarean section is to be preferred to Porro's operation, except in cases where there are uterine tumours that can be removed at the same time; also where the uterus is affected with cancer Porro is to be preferred, as here the offensive odour and discharge would be very likely to set up fatal peritonitis if the uterus were left. **Dr. Routh** also gives preference to Porro's operation in those cases in which the child has been for some time dead, and perhaps

putrid ; as under these conditions, even with the most antiseptic measures, the dangers of infection are very great. Dr. Horrocks thinks that Porro's operation should be selected in cases of rupture of the uterus. Opinions differed as to the advisability or not of abandoning altogether the elastic ligature. Another point in which a difference of opinion existed was as to the choice of time for operating. Drs. Duncan and Cullingworth preferring to operate at a convenient hour instead of waiting for the commencement of labour, considering that the operation itself was sufficient to excite uterine action. There was, however, a unanimity of opinion as to the advisability of opening the uterus and removing its contents *in situ*, as it obviated the necessity of a long abdominal incision and possible exposure and chilling of the intestines.

Ledru (*Annales de Gynécologie*, March, 1892) communicated to the Paris Société de Chirurgie a successful case of Cæsarean section for a rickety pelvis. The child was removed dead. M. Ledru did not use the elastic ligature, and there was but slight bleeding ; nor did he bring out the uterus through the abdominal wound. The patient was sterilised by removal of both ovaries. Dr. Bovilly, in the course of the subsequent discussion, remarked that at the present time there was a general agreement as to the respective indications of Porro's operation and Cæsarean section—the first being suitable to those cases in which operative treatment was called for, after the commencement of labour, on a uterus already infected ; the second to those operations performed at a chosen time on an aseptic uterus. M. Bovilly finally remarked that to prevent a future pregnancy it was sufficient to divide each fallopian tube between two ligatures, a proceeding much less formidable than oöphorectomy.

V.—SYMPHYSIOTOMY.

In stating last year that the greatly improved results in delivery by abdominal section had induced a decided tendency to resort more frequently to the Cæsarean section and Porro's operation, we remarked that more mature experience would probably teach us to treat cases of obstructed labour requiring surgical interference by other and less heroic methods. This view has been confirmed to some extent within the last year by the revival, under the auspices of several well-known Continental obstetricians, of the long neglected operation of symphysiotomy. Although obviously directed in great part against the sacrifice of foetal life by the practice of craniotomy, its supporters lay great stress upon its utility as a comparatively harmless substitute, in

many cases, for the methods mentioned above, which entailing abdominal section necessarily involve very great risk for the mother.

Originally a French operation, first performed by Sigault in 1768, it obtained some notoriety for a time, but rapidly fell into discredit, being condemned by Boudelocque and others, who pointed out many objections to its adoption, some of which, it is now asserted, have disappeared with our progress in antiseptic surgery, while others, the same authorities affirm, are demonstrably erroneous.

A short article in the *Brit. Med. Journal* of Dec. 12, 1891, mentions the circumstances in which the attention of several Parisian obstetricians was drawn to the "high degree of success of this operation in cases of rickety or dwarfish pelvis in the hands of Professor Morisani, of Naples." Dr. Spinelli, the scientific ambassador of the Neapolitan professor, was so successful in his mission to Paris, that Professor Pinard was sufficiently interested in the subject to invite him to give a full exposition of the doctrine of his master, and to illustrate it by an experimental operation in the Hôpital Boudelocque. This, we learn, was accordingly done on November 16, in the presence of a small but distinguished gathering, with so satisfactory a result that men like Professor Pinard, Tarnier, and Farabeuf expressed their intention of trying the method as soon as the opportunity presented itself.

The *Annales de Gynécologie et d'Obstétrique* for Jan., 1892, contains a highly interesting paper by Dr. Spinelli on the results of antiseptic symphysiotomy in the Obstetrical School of Naples. He there gives a very complete record of twenty-four cases of obstructed labour terminated by symphysiotomy, with the surprisingly successful result of no unfavourable consequences for the mothers and the survival of twenty-three children. The one child that succumbed, extracted by turning, was in a pronounced condition of asphyxia at the time of birth and died twelve hours later.

It will be noticed that the word "antiseptic" is introduced in the title of Dr. Spinelli's paper. Although not mentioned by the author, the probable reason for introducing a qualifying term is to be found in an article by Dr. Charpentier, published in the July number of the *Archives de Tocologie et de Gynécologie*. This article deals exhaustively with the subject of symphysiotomy, and will be referred to again in the course of this review. It discusses Dr. Spinelli's statistics, and shows that they contrast most favourably with the former records of symphysiotomy, which, previous to the advent of antiseptic principles and modern advances in

obstetric science, furnished most discouraging results (Morisani, Congress of London, 1881).

In summarising his paper, which is thus founded on exceptionally favourable statistics, Dr. Spinelli arrives at the following conclusions :—

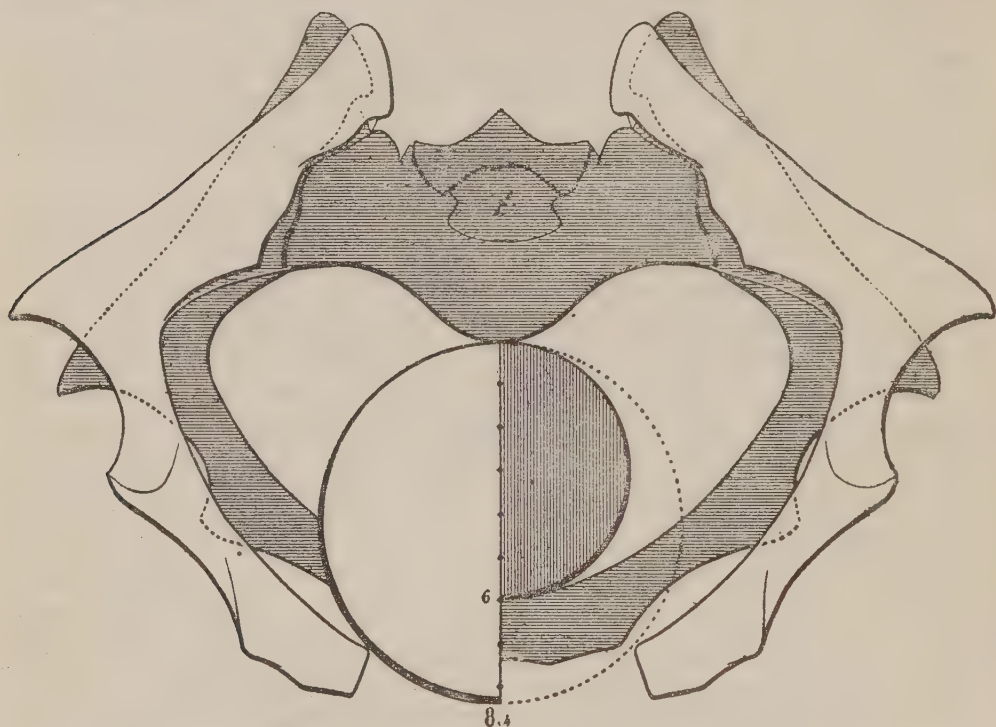


Fig. 1.—Horizontal Section at level of inlet of a contracted Pelvis having a conjugate diameter of 6 cent. The shaded segments represent the condition before the operation ; the white show the condition after the separation of 60 mm. permitted by the operation.

(1) That a foetus at term and well-developed can be delivered, by the aid of symphysiotomy, from a deformed pelvis whose true conjugate diameter measures at least 6.5 cm.—that is, a pelvis which, “in the opinion of the accoucheurs of all countries,” would be intractable to anything but embryotomy or Cæsarean section.

(2) That any case of contracted pelvis can be treated by symphysiotomy, provided the operation be carried out with due antiseptic precautions and the foregoing limits be observed.

Beyond mentioning that Dr. Spinelli's cases are of the most varied description, that some, at least, are examples of a very advanced degree of pelvic contraction (Case 3.—Flat rachitic pelvis. Diagonal conjugate, 8.1 cm. True conjugate, 6.6 cm. Biparietal of child, 8.5 cm. Case 14.—Malacosteon pelvis. Bi-ischiatic, 4 cm. True conjugate, 8.1 cm. Child at full term. Case 18.—Diagonal conjugate, 8.6 cm. True conjugate, 7 cm.

Two operations—1st child, biparietal, 8·8 cm. ; 2nd child, biparietal, 9 cm. Case 23.—Extremely rachitic pelvis. Bi-ischiate, 3·2 cm. Biparietal of child, 8·7 cm.), and that some of the patients had undergone the operation of symphysiotomy on two occasions, we do not consider it necessary to enter into any details mentioned in this

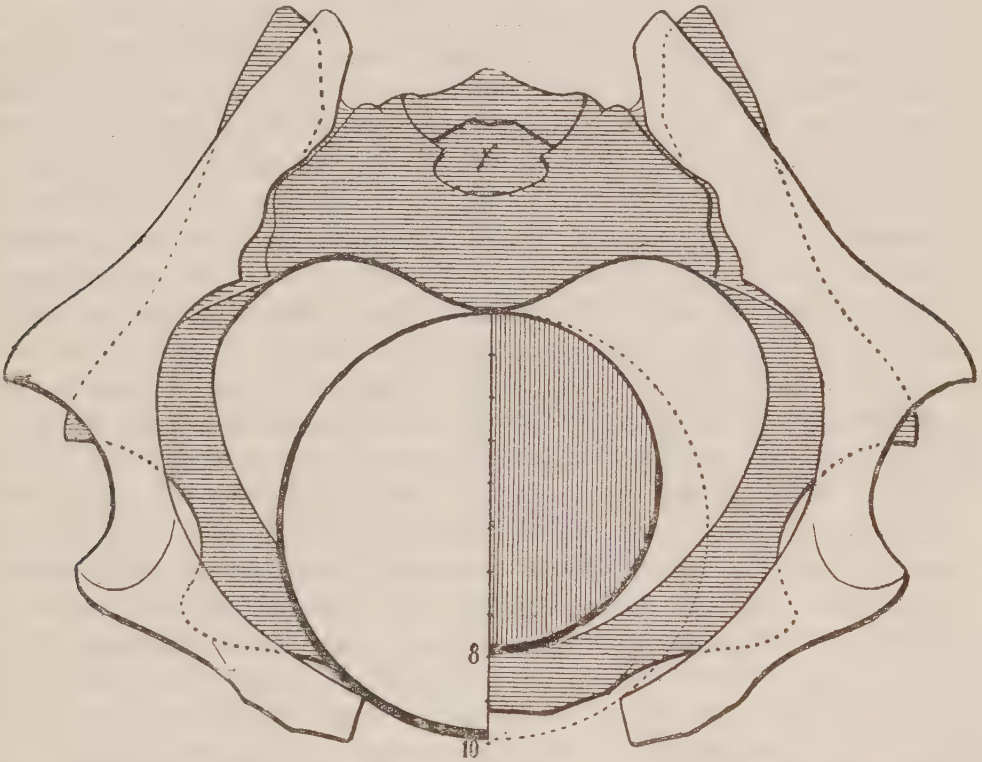


Fig. 2.—The same conditions in a Pelvis having a conjugate diameter of 8 cent., in which a separation of 60 mm. was permitted by the operation.

paper, because the question, besides being discussed by Dr. Charpentier, as we have seen, also received the critical and mature consideration of **Professor Pinard**, who follows, in the February number of the same journal, with a lecture on the new operation. Professor Pinard opens his lecture by stating that every case of contracted pelvis in a woman labouring with a dead child can always be successfully ended by employing Tarnier's basio-tribe. He claims to have proved this statement conclusively by his results published in 1887. With a live child the problem is altogether different. The justice of embryotomy can be, and is discussed by the advocates of Cæsarean section. While French accoucheurs, with few exceptions, relying on the results of embryotomy by the basio-tribe, always sacrifice the child for the sake of the mother, a large number of foreign accoucheurs declare in

favour of Cæsarean section where no complications have arisen by abortive attempts at extraction by the natural passages.

Proceeding to compare the rival methods, he points to statistics of fifty women delivered by the basio-tribe, with the result of fifty mothers saved and fifty children sacrificed. In the case of twenty-eight healthy mothers subjected to Cæsarean section, Leopold's statistics (the most favourable up to 1890) give twenty-five mothers surviving the operation and twenty-eight living children. Thus, he remarks, in spite of the remarkable progress of the last fifteen years, the accoucheur, brought face to face with the alternative we are discussing, is reduced to perform either an operation which saves the mother as surely as it destroys the child, or an operation which, saving the child, endangers the life of the mother. Some less cruel solution to the difficulty should be sought, says Professor Pinard, and he thinks it is to be found in the operation of symphysiotomy, which he therefore proceeds to discuss in both its ethical and practical aspects. Sigault seems to have been more successful in the cases he undertook himself than were his imitators. The neglect that overtook the new operation is not difficult to explain—whenever a novel operation is performed, supposedly appropriate cases always arise in large numbers. Thus it was on the occasion in question. The operation was abused in Paris, in the provinces, and abroad; and a reaction against it inevitably took place, giving rise to a fierce discussion everywhere between the rival advocates of symphysiotomy and Cæsarean section. We have already mentioned that Boudelocque lent the weight of his authority to the opponents of the proposed operation. Pinard refers to the reason for this opposition, which he considers unfounded, although Boudelocque had made numerous experiments on the dead body, and had reviewed the results of the numerous operations performed at the time. Boudelocque asserted that when a woman on whom symphysiotomy had been performed, succumbed, it was undoubtedly the operation that was to be incriminated; and that when they recovered, it might be doubted whether it had ever been completed, or whether it had not been performed on subjects whose condition did not require such intervention. Boudelocque's further objections to Sigault's operation are well known. He affirmed that the sacro-iliac symphyses were torn by a separation of the pubic symphysis of less than two inches and a half, and that, in spite of this divulsion, the antero-posterior diameter remains insufficient to allow the passage of the foetal head. Madame Lachapelle repeated Boudelocque's anathema; and thus, although Dubois successfully operated twice on the same woman, and Gardrin pleaded temperately in favour of the opera-

tion, it was not long before it disappeared from the practice of French accoucheurs. Subsequent French authors either condemned it or never practised it. Stultz, although proposing an operative modification (subcutaneous bubiotomy) preferred Cæsarean section; so did Professor Tarnier, although he remarked that it "may not, perhaps, be either daring or rash to suppose that some day symphysiotomy may prove the complement of premature delivery." Pinard further alludes to Bouchacourt's article on symphysiotomy in the "*Dictionnaire Encyclopédique des Sciences Médicales*," where the author reports favourably on the results of his experiments and on those of the Naples school, without, however, declaring his intention of having recourse to the operation. The German school he finds more uncompromising than Bouchacourt. Fenafel considers that even the idea of symphysiotomy is false; Fehling sees no alternative but craniotomy or Cæsarean section, while Olshausen and Veit even expunge the word from their revised edition of Schroeder's treatise on midwifery. The lecturer finds the same hostility in English authors. Only in Italy, Pinard proceeds to say, did the new method gain any ground, and there it was adopted almost exclusively by the Neapolitan school. He then refers to the results published by Professor Morisani, which are mentioned in our opening lines. Three questions, the paper continues to say, require to be answered in this discussion:—(1) Can we obtain by symphysiotomy, without inflicting any serious injury on the pelvis, a marked increase in its capacity? What degree can this enlargement assume? (2) May symphysiotomy be performed by the ordinary accoucheur, and how? (3) How do the results of the operation affect the consolidation of the pelvis, the walking powers, and the progress of subsequent gestation? As to the first question, the results published by Boudelocque and by those who have subsequently sought to elucidate the question seem to be absolutely contradictory. Without attempting to conciliate this divergence of views, Professor Pinard gives the results of his own experiments carried out in conjunction with Professor Farabeuf and Dr. Varnier. The specimens described by Professor Pinard accompany this notice. The first shows the contracted pelvis of a woman who died of nephritis nine days after delivery at full term. A section has been made through the plane of the inlet, which gives a conjugate of 10·8 cm. By expanding the pubis to the extent of 6 cm., this pelvis of 10·8 cm. becomes a pelvis of 12·4 cm.—that is, the antero-posterior diameter is increased by 14 mm. The sacro-iliac articulation is open anteriorly; the powerful posterior ligaments are intact, and run no danger of injury from

stretching ; the thin anterior ligament which resists distension is not even ruptured, but only stripped from the anterior aspect of the iliac bone. On removing the wooden index which stretches the pelvis, the joint assumes its normal position and the closest inspection will scarcely reveal any traces of injury. The second specimen, said Professor Pinard, is as interesting to the surgeon as it is to the accoucheur. With a separation of the pubis of 8 cm., the anterior sacro-iliac ligaments are not even torn from the bone. Nevertheless this is a pelvis of an old woman who had long passed the period of procreative activity. From the inspection of these two pelvises, one of which is greatly and the other moderately contracted, may be drawn the following conclusions:—(1) that increased capacity is possible, and even striking ; (2) that, maintained within useful limits, it produces no further damage to the pelvis than to separate the thin anterior sacro-iliac ligaments from the bone. Professor Pinard continued to point out further facts deducible from the semi-diagrammatic figures prepared by Professor Farabeuf. These conclusions, while confirming what Boudelocque had already observed—namely, a pelvic capacity increasing in direct proportion to the degree of contraction—embraced other highly interesting corollaries. Thus, by using two spheres to gauge the contracted and the increased pelvis, he established that this increase in diameter was as 81 is to 60, and that the increase in volume was as 310 to 113, that is, three times as great. In the second case these proportions, in a moderately contracted pelvis, were for the diameters as 98 to 80 ; for the cubic capacity as 488 to 267—about double ; that is, a fœtus of 3,000 grammes would be smaller for the stretched pelvis than a fœtus of 2,000 grammes for the pelvis untouched. The lecturer then passed to the discussion of his second point—that concerning the difficulty of the operation. Most of those, he said, who had performed symphysiotomy consider it an easy operation, whatever the procedure employed. Morisani's method, he thought, could be simplified and improved upon, and that, even without a complete set of appropriate instruments, the operation could be performed without any danger of injury to either the peritoneum or bladder. Here is described the *modus operandi* that Professor Pinard would adopt ; but we shall follow the lecturer and M. Tarnier when we allude to the four operations which they undertook, and described in two subsequent papers.

The third point is discussed as follows:—We are already aware, from numerous observations, that after the spontaneous or artificial rupture of the symphysis pubis during labour, consolidation is the rule. The lecturer mentions a case in point that

came under his care at the Lariboisière Hospital. He had occasion to perform an extraction by forceps on a woman with a contracted pelvis. While carefully guiding, with one finger only, the rotation of the head and the forceps, he suddenly heard a cracking noise. After delivery, as the child's head showed no signs of injury, he made a vaginal examination, and discovered to his dismay that the pubic arch presented a solution of continuity admitting two fingers. Six weeks later, without the use of any appliance to maintain the fracture, the patient left the hospital, walking as well as she did before her confinement. It may be added that in a second confinement this patient was delivered at full term by the natural forces without accident. The author remarks that the teaching of this case, added to Dubois' success in operating twice on the same patient, and the striking results furnished by the Neapolitan school, removed any doubts he might have entertained as to the manner in which the third question should be answered. The only precaution enacted by the condition of the divided pelvis is to secure consolidation by means of a bandage or belt.

Pinard concludes by affirming that, if the answers to these three questions be reliable—and they seem to have been satisfactorily met—the time has come to reconsider the opinion of preceding authorities. He thinks the failure of our predecessors may be attributed to the dangers that surrounded puerperal surgery prior to the period of antiseptics. Porro's and Säuger's operations owe their success chiefly to the antiseptic measures of our day; he trusts that similar precautions, added to operative skill, will secure the same success for symphysiotomy.

Professor Morisani publishes a paper on the same question in the April number of the *Annales de Gynécologie*. It is the substance of a lecture delivered in the presence of Dr. Charpentier, of Paris, and commented upon by this author in a subsequent communication to the Paris Academy of Medicine and in the article of the *Archives* we have already referred to. The results of the Neapolitan professor are based upon twelve personal cases of symphysiotomy. As these cases, however, enter into the statistics discussed by Pinard in the paper we have just reviewed, it will be only necessary for our present purpose to make some cursory remarks on the points that may have been omitted by Professor Pinard.

First, as to the mechanism by which an increase is obtained in the capacity of the pelvis, Morisani confines his remarks to the extension observed in the length of what he calls the two sacro-pubic lines—that is, the two lines drawn from the promontory to

the extremities of the separated pubic branches. This increase of length is not obtained by a projection forwards of the two sections of the pubic arch (according to Bouchacourt, quoted by Charpentier, this projection forwards takes place to the extent of one-sixth of the pubic expansion). It is due simply to the separation of the branches in nature of the elasticity of the sacro-iliac ligaments, which are acted upon by the muscular mass investing the pelvis, and by pressure applied to the thighs, which have been previously flexed. These forces act laterally on the bones, and have thus no resultant that would induce a forward movement. Professor Morisani concludes from his own and Leroy's experiments, that for each cm. of pubic separation these sacro-pubic lines are increased by $2\frac{1}{2}$ mm.; so that for 6 cm. of interpubic distance the sacro-pubic lines will gain 13 to 15 mm. in length. There is necessarily a proportionate increase in length of all the lines radiating from the sacral centre. But the pubic capacity can assume a further virtual increase during labour. The foetal head once engaged in the brim, the anterior parietal protuberance may project into the interpubic space (or the bitemporal diameter in an after-coming head—Charpentier—who adds that the gain in the bi-ischiatic diameter is quite three-quarters of the pubic separation). Hence, an increase in the pelvic lines by the relative diminution of the biparietal (or bitemporal) diameter of the foetal head. This increase may be estimated at 6 or 8 mm., which constitute altogether a gain of 20 to 22 mm. in the antero-posterior lines. The increase in the transverse and oblique diameters varies between a half and a quarter of the interpubic space. From these considerations, says the author, may be fixed the limits within which symphysiotomy becomes a practical operation. The separation of the pubic branches should in no case, we have noted, exceed 6 cm. (subsequent operations furnish a higher figure). With this space we gain 13 to 15 mm. in the sacro-pubic lines. With the parietal protuberance engaged there is a virtual gain of another 6 or 8 mm., which, as we have seen, gives an aggregate gain of 20 to 22 mm. The biparietal diameter of a full-term foetus being 95 mm., reducible say to 90 mm., delivery will become possible with a contraction of not less than 67 mm., and easy with one of 70 mm. This should be the inferior limit of symphysiotomy. The superior would be somewhere in the vicinity of 88 mm., but this figure is necessarily more or less arbitrary. [Charpentier discusses at some length the indications for symphysiotomy in its relation to the induction of premature labour, to Cæsarean section, and to Porro's operation.

He mentions some cases where Novi combined premature induction with symphysiotomy. If symphysiotomy, he adds, is indicated in contraction of the true conjugate, it is even more useful in transverse contractions, where the inlet, cavity, and outlet are all deformed (kyphotic pelvis), and in sacro-coccygeal deformities. It also applies to cases of moderate general contraction; and, lastly, to cases where, with a normal pelvis, there is abnormal development of the child.] Professor Morisani does not propose to substitute symphysiotomy for the induction of premature labour, nor does he discuss at any length the relative advantages of this operation and Cæsarean section. He declares that the indications for the first end where those of the second begin. He condemns, however, the tendency observable within the last few years of resorting so frequently to hysterotomy, and is severe in his censure of craniotomy. The author concludes by stating that consolidation of the pelvis is complete in from two to four weeks after operation, and that the walking powers are undisturbed even in those patients who have undergone a second operation. Some space is devoted to a description of his method of operating, but his remarks are embodied in the papers we will proceed to consider, due to **Professors Pinard and Tarnier**.

The May number of the *Annales de Gynécologie* contains the *résumé*, by the first-named professor, of three cases of symphysiotomy, an operation he had promised to perform after observing the results he announced in his first paper. These cases, which follow, are recorded very summarily:—**FIRST CASE**.—Age 32, secondipara. Rachitic, hour-glass (canalicula) pelvis; diagonal conjugate 9·7 cm. First delivery by embryotomy. Labour induced at eight and a half months by means of Champetier de Ribes' bag. Dilation being complete, an attempt was made to engage the head in the brim, but these efforts being unsuccessful, it was decided to practise symphysiotomy. After the incision of the symphysis the pubic branches sprang apart spontaneously to the extent of 1 cm., any further separation was left to the action of the foetal head during its descent. Turning was performed, and the head extracted by Champetier's manœuvre. The child, weighing 3350 grammes, apparently stillborn, presented a deep depression of the posterior parietal bone. It was revived by artificial respiration, but died on the third day, after showing classical symptoms of meningeal hæmorrhage. The pelvic incision, which was sutured, united by first intention. A plaster-of-Paris bandage was applied to secure adaption of the pubis; puerperium normal. The patient left her bed on the twenty-fifth day, and walked without pain. No abnormal movements in the symphysis.

SECOND CASE.—Primipara; flattened pelvis; promontory easily accessible. Entered the clinique at full term, and in labour. Child alive; vertex presentation; head not engaged in pelvic brim. Membranes ruptured artificially, but there being no progress of labour after ten hours, forceps were applied unsuccessfully. Symphysiotomy was practised two hours later. One cm. of separation increased to $3\frac{1}{2}$ by abduction of thighs. Easy extraction by forceps, in four minutes, of a boy weighing 4630 grammes. During the engagement and descent of the head the divided pubes separated to the extent of 6·5 cm. After-results normal, the patient walking without pain or difficulty on the thirty-fifth day; child well.

THIRD CASE.—Patient, aged 30, entered the ward in the eighth and a half month of her fourth pregnancy. Pelvi-diagonal conjugate, 9 cm. First pregnancy, artificially delivered child, stillborn; second induced at eighth month, and terminated artificially—child died on third day; third, full term, forceps, child died. Labour was induced by Champetier's bag; forceps applied three times ineffectually; then symphysiotomy was performed. Previous spontaneous separation of 1 cm. of divided pubes increased to 4·6 cm., by abduction of thighs, when forceps were applied, and a live child weighing 2730 grammes was delivered. The maximum separation of the pubes during extraction was 6·5 cm. After-results quite normal, the patient walking on the twenty-ninth day.

Prof. Tarnier communicated his case to the Academy of Medicine, and in the August number of the *Annales* he published the particulars, which were as follows:—Patient aged 21, rachitic, with extreme deformity of tibiæ; lame from childhood; diagonal conjugate, 9 cm.; estimated true conjugate, 7·5 cm.; was pregnant for the fifth time. Her first three pregnancies had been terminated by cephalo-tripsy, the fourth by basio-tripsy. She had reached her eighth month of pregnancy when Prof. Tarnier decided to induce labour at once, and in the absence of spontaneous engagement of the foetal head, to perform symphysiotomy. Labour was induced on the 16th of May, and every antiseptic precaution adopted in view of a prospective operation. Next day, the dilatation being complete, the membranes ruptured, and still no sign of the head entering the brim, symphysiotomy was performed. The operation was simple. The soft tissues were divided by an incision directed from the upper part of the pubis to the clitoris; the symphysis was divided by a probe-pointed bistoury, carried from before backwards and from above downwards. The left index-finger, introduced behind the symphysis, guided the bistoury in making

the section. A separation of 57 mm. was obtained by means of Dr. Tuffier's retractors. Forceps were used to bring down the head, but the os had to be incised. Delivery then took place easily. The child weighed 2230 grammes, its biparietal diameter being 9 cm. (*Charpentier* mentions that in Naples, if forceps have been applied without success, they are not removed while symphysiotomy is being performed if they are likely to be needed subsequently for extraction.) Fine sutures were put in to close the incision over the pubis, and the pelvis was secured by an elastic bandage, for which on the following day Pinard's apparatus was substituted. The after-results were satisfactory in every way for both mother and child, the patient walking comfortably on the twenty-sixth day and the child increasing normally in weight.

Dr. Robert Mullerheim, in the same number of the *Annales*, records a successful case of symphysiotomy.

Leopold (*Journal d'Accouchements*, taken from the *Centralbl. für Gynäk.*) describes two similar operations performed for rachitic pelves. The pubic separation during the passage of the foetal head was in one case 7 cm., in the second 6·5 cm. The results were good for both mothers and children.

Porak (*Annales de Gynécologie*, Sept., 1892) also records a successful case.

Viewing the marked successes recorded in this short review of the revival of the once-condemned operation of symphysiotomy, it would appear that the much-vexed question as to the proper application of the rival methods of operative delivery will have to be again reopened and discussed from a wider point of view.

VI.—THE PUERPERAL STATE.

Of puerperal sepsis due to the introduction of poison by impure hands or instruments, so much has been written of late that it is needless to add much on the subject. On the question, however, of puerperal poisoning due to bad sanitary surroundings, much has yet to be learnt. In some of the following communications this subject is discussed, and valuable evidence is given. In what manner the foul material gains access to the patient's body, whether by the respiratory tract or otherwise, may for some time be a debated question; but there can be doubt that this form of septic intoxication does actually exist. Probably most practitioners know of cases in which patients, whose lying-in chamber was in close proximity to bad drains, privies, slaughter-houses, or other sources of foul emanations, have suffered for some weeks after delivery from pyrexia, foetid discharge, and other signs of poisoning.

In all such cases the remarkable clinical fact is this, viz., that while douching, quinine, and other remedial means have no effect on the diseased condition, recovery rapidly takes place when the patient is moved into some sanitary dwelling. Numerous cases could be quoted in support of this assertion, did space permit.

18. Mephitic air as a cause of puerperal septicæmia.

Guéniot (*Annales de Gynécologie*, April, 1892) read a paper before the Paris Academy of Medicine, based on four cases of puerperal septicæmia, which after minute investigation could be attributed to no other cause than contamination from decomposing matters present in the surrounding air. In all four cases the houses were malodorous, and the sanitary arrangements extremely faulty. The following conclusions were arrived at by the author:—

(1) Air poisoned from any cause, such as ill-ventilated closets or untrapped drains, becomes a fruitful source of puerperal fever.

(2) Mephitic intoxication during pregnancy takes place chiefly through the respiratory passages; after delivery, on the other hand, it occurs through raw surfaces contaminated by liquids and solids already infected by the poisoned air.

(3) The resulting septicæmia is of a non-suppurative type, its principal focus being in the uterine cavity, where, among the products of mephitism, the septic vibrio finds a fertile breeding-ground.

As a prophylaxis the author relies on thorough ventilation and perfect sanitation, and for treatment lays great stress on the efficacy of carbolised intra-uterine injections. The paper gave rise to a very keen discussion, in which the theory of infection through the air-passages was strongly objected to by MM. Guérin and Charpentier.

19. Certain sources of infection before and after labour.

Leopold (*Centralbl. für Gynäk.*, No. 29, 1892) recently related before a German medical society some instructive cases where high temperature occurred during the first days of the puerperium. The causes were carefully sought for. In a few instances the patients had put off entry into a lying-in hospital until labour had commenced; they had first called in private midwives, who made digital explorations. In other cases the patient was suffering from gonorrhœa, still acute, and the obstetrician's or midwife's finger had wounded the cervix and caused infection. In one case the patient had actually contracted gonorrhœa within the last twenty-four hours before birth. No digital exploration was made. In

many cases careless digital examination, with introduction of sweat, vulvar secretions, vaginal discharge, urine, or fæces undoubtedly caused fever by infecting wounds of the os. He noted Döderlein's case, where a dirty glass-eye belonging to the patient proved a focus of infection. The possibility of danger from a midwife suffering from cancer or leucorrhœa must not be overlooked. Leopold referred to air-infection, and said that he had observed a case where fever did not set in till after the birth of the child's trunk, during which process air was heard to enter the uterus. Meinert spoke of infection by retained fæces, by erysipelas, and by scarlet fever. In fever from retained lochia temperature rose slowly, without rigors, and fell slowly. Ptomaine infection from retained placental relics was not usually attended by rigors. He had seen very high fever, with rigors, come on soon after delivery, and pass off within a day. This occurred in three consecutive labours in the same patient. The fever in such cases had nothing to do with infection.

20. Puerperal fever of the past and of the present.

Labadie-Lagrave and Gouget (*Annales de Gynécologie*, Oct., 1891) have written an interesting paper to show that, since the introduction of the use of antiseptics in labour, puerperal fever has not only considerably diminished in frequency, but also that the general type of the disease has been modified. The authors maintain that at the present time the proportion of mild to severe cases is much greater than in the past, and that some forms of infection have undergone so great a symptomatic evolution as to render their diagnosis difficult. The article starts with a review of puerperal fever in the pre-antiseptic period, the outcome of which is a division of the disease into two distinct groups: one marked by general symptoms—high temperature, extreme rapidity of pulse, repeated rigors, and grave general condition, with, however, no abdominal symptoms, and uniformly fatal in a few days—a septicæmia; the other group marked by local symptoms—meteorismus, abdominal pain, sub-involution, uterine tenderness, diminution and fœtidity of lochia, with the general symptoms of but secondary importance, running a longer course and of less grave prognosis than the former. It is with the modification of type in the first group that the paper chiefly deals. The authors publish details of six cases in which acute illness set in during the first week of the puerperium, accompanied by high temperature, great frequency of pulse, and repeated rigors, with but slight meteorismus and a somewhat badly retracted uterus, no abdominal or uterine tenderness, and no fœtor of lochia. Five of the cases recovered, and in the fatal case the illness lasted fifteen days.

After a careful analysis and by a process of exclusion, the authors arrive at a diagnosis of septicæmia of an attenuated type. In the fatal case the diagnosis was confirmed at the autopsy. This modification of a type, formerly universally and rapidly fatal, the authors attribute to a diminution or attenuation of the pathogenic organisms due to the antiseptic used as a prophylactic. As to the treatment, great stress is laid on the repeated use of antiseptic intra-uterine injections. As a proof of the influence of antiseptic treatment on the attenuation of the infection, a comparison is made between the relative frequency of mild and severe cases of infection during a year of the pre-antiseptic period and last year. Taking phlegmasia alba dolens as an instance of mild and peritonitis of severe infection, the numbers are:—Pre-antiseptic—Phlegmasias, 8; peritonitis, 8. Last year—Phlegmasias, 4; peritonitis, 2.

21. Lysol in midwifery and gynæcology. See article on "Therapeutics," p. 455.

22. Action of hydrastis canadensis on the uterus in the puerperal state.

Bordé (*Rif. Med.*, Feb. 25, 1892) gives the results of his experience with hydrastis and its preparations. As regards hydrochlorate of hydrastin, he finds that (1) it has no action on the physiological loss of blood during and immediately after labour; (2) it has no influence on the involution of the uterus during the puerperium; (3) it has very little influence on the lochia—its action, if any, being to cause (a) greater persistence of the red lochia, (b) delay in the expulsion of the clots, (c) greater fœtor of the lochia; (4) it does not assist the expulsion of clots and other bodies contained in the uterus. As regards the extract of hydrastin, he concludes from observations on twenty-five normal labours, in which the drug was given in large doses during and for ten days after delivery, that if this drug has any action at all on the uterus in the puerperal state, it is to diminish the activity of its retraction and contraction, and therefore to increase both the loss of blood and the subsequent troubles. Finally, he gives it as his experience with the drug in a few cases of non-puerperal uterine hæmorrhage that it always failed.

VII.—THE INFANT.

The following papers relating to the conditions affecting newly-born infants will be found to contain much which is of interest and practical import.

23. Injection of dog-serum in infants born of

tubercular mothers, or born in a state of congenital feebleness.

Pinard (*Annales de Gynécologie*, Nov., 1891) states that he was induced to try the effect of injections of dog-serum on children born of tubercular mothers, after having seen the results of the experiments on animals carried out by MM. Richet and Héricourt. The first injections were practised on two children born before term of tubercular mothers, the amount injected in each case being 1 c.c. After an interval of seven days, as the first injections had given rise to no bad symptoms either local or general, a similar injection was given to each child. This was repeated five days later, and again after an interval of two days. The mothers of these two infants were at the time of their delivery in the last stage of tubercular cachexia; one died on the ninth day, the other on the seventeenth day after confinement.

As regards the children, one weighed at birth 2,600 grammes, and a month later 2,680 grammes, after having fallen to 2,430 grammes on the third day; the other weighed at birth 1,530 grammes, and on leaving the hospital 1,520 grammes, after having fallen to 1,210 grammes on the ninth day of its existence. Encouraged by these results, Prof. Pinard now injects all children whose weight at birth is less than 2,000 grammes, and not only has he increased the amount of each dose to 2 c.c., but also the number and frequency of them, giving in one recorded case twenty-five injections of 2 c.c. each, in forty-one days. Up to the time of publishing his article, Prof. Pinard had subjected twenty-one infants to this treatment, of whom only four, whose weights at birth were 1,700, 1,600, 1,590, and 1,310 grammes respectively, died. The proportion of infants saved under this treatment is therefore greater than that previously obtained in the hospital.

Prof. Pinard considers it sufficiently proved that the injections, practised with due antiseptic precautions and at the present dose, do not give rise to any ill-effects, and that, moreover, they exercise a powerful tonic influence on nutrition. The article gives full details of twenty cases.

24. Obstetrical paralyses in the new-born.

In the *Annales de Gynéc. et d'Obstét.* (Oct., 1891) Dr. Danchez concludes a series of observations upon injuries to the child during labour, and their more or less permanent effects. A number of instructive cases have been collected and published in abstract in Dr. Danchez's memoir. In several, pressure on Erb's point (where the fifth and sixth cervical nerves emerge) caused more or less paralysis of the deltoid, brachialis anticus, biceps, and supinator longus. This pressure is made by the obstetrician's fingers

during version, and traction on the shoulders during extraction in breech cases, and in normal presentations where the second stage is lingering. Sometimes the serratus magnus is paralysed. The forceps may do as much harm as the fingers. A bad case of dislocation of the shoulders and paralysis, under Dr. Monnier's care, is published for the first time by Dr. Danchez. A country midwife undertook a breech case. In order to hasten delivery she dragged the child's body forcibly by the feet. The arms were thus pulled over the head. Next day it was noticed that the child's arms were abducted and rotated inwards. When the child was seen four years later by Dr. Monnier the arms remained in that position. When it was eleven days old a physician at Quimperlé diagnosed dislocation of both shoulders, but did not, apparently, attempt to reduce them. Electricity was tried for six months by another practitioner. When examined by Dr. Monnier the dislocations were evident. All the muscles of the shoulder were atrophied; the teres minor and infra-spinatus formed a firm cord. The child could hardly use his hands. He was a male, in good general health. Sensibility was intact all over the damaged upper extremities. Dr. Danchez distinguishes two classes of congenital obstetrical paralyses. The first class includes the so-called spontaneous paralyses, where the lesion is entirely due to the natural or abnormal mechanism of labour, and not to the obstetrician or his instruments. The head or one of the limbs is pressed against the surrounding parts, to the damage of certain nerves. The second variety bears the term "traumatic paralysis," where during traction, version, or the use of the forceps, some damage is done to a nerve or to a plexus of nerves. Over and above these two classes Dr. Danchez adds a third, which he terms "obstetrical pseudo-paralysis," where the paralysis is simulated by primary or secondary dislocation of one or both upper extremities, as in Dr. Monnier's case. Obstetrical paralyses are almost entirely motor. Nevertheless, two cases are recorded where sensory paralysis followed difficult version; the serratus magnus and many muscles of the arm were, in both instances, paralysed.

25. Is a child viable at six and a half months?

Eliot (*New York Med. Rec.*, Oct., 1891) details three cases of premature birth with viability of the children. From the date of the last menstruation to that of delivery the time in one case was six months and eleven days, in another seven months and one day, in the third case seven months and sixteen days. The last child died on the fourth day; the others were still living. From these cases, and from some others which Eliot briefly analysed, the

following conclusions were drawn:—(1) The child, under peculiar circumstances of development, is viable at four months; (2) a child is viable at six and a half months; (3) the moral character of the parents has nothing to do with the birth of a premature child when considered from the standpoint of constitutional development; (4) obstetricians should strive to convince the laity of these facts. Marcy thought that to him belonged the credit of saving the first child, at about the sixth month, in an incubator. The boy was six or seven, and healthy. Carsteus thought that the age of a prematurely-born child could only be guessed at. It could not be stated positively unless two facts were known—the date of last menstruation and one sole connection subsequently.

26. Sudden death of fœtus and of newborn children.

Schrader (*Centralblatt. für Gynäk.*, Nov., 1891) records cases in which the fœtus dies a few days before the onset of labour; in others the fœtus is born asphyxiated, revives, but dies suddenly within a few days. In the first group of cases the mother usually notices that fœtal movements cease a few days before labour. Malformation of the heart or great vessels is the most frequent cause of death in all cases. Four instances of heart disease in dead fœtuses have been already recorded. Schrader adds two cases. In the first a loud systolic fœtal heart-murmur had been heard. A similar fœtal murmur was detected in a case under Professor Ahlfeld, the child being born alive, and the murmur heard, quite as audibly as before birth, when the child was nine months old. In Schrader's case fœtal movements ceased within two days of labour. The child was born dead, and a large foramen was detected in the septum ventriculorum. In Schrader's second case the child was born alive at term, but died nineteen hours after birth. It had extreme syndactylus, involving all the extremities. Syndactylus in itself cannot cause death, but it is usually associated with other deformities. On that account Schrader ordered a necropsy, and found congenital absence of the left lung, the heart hypertrophied (filling the entire left half of the thoracic cavity), and partial transposition of the great vessels. Schrader also describes a case where the fœtal sounds were heard twenty-five minutes before birth. One strong pain ruptured the membranes and delivered the child. It was dead. At first Schrader believed that it had been asphyxiated through uterine contractions occurring in too rapid succession. After further consideration, however, he attributed it to late rupture of the membranes. Valenta has already shown that rupture of the

membranes at the right moment is of great advantage to the child—2·2 per cent. more children are born alive when the membranes are ruptured artificially, instead of being left to burst long after the dilatation of the os. Again, when after artificial rupture, the child is born asphyxiated, it is never restored to life; at least, not in Valenta's experience. Lastly, Schrader describes a case where hydramnios was present, but labour easy. The child was born a little before term; its heart acted at birth, but it made no respiratory efforts. It died in forty-nine minutes. No morbid appearances were detected at the necropsy. Perhaps there was some anomaly in the respiratory centre. In the discussion on Schrader's paper, **Aly** mentioned a case of hæmorrhage into the placenta and sudden cessation of foetal movements in the eighth month, followed, three days later, by violent pains and birth of a dead child. **Lomer** said that intra-cranial hæmorrhage was one cause of foetal death. **Schütz** observed that syphilitic pneumonia not rarely killed the infant within the first few days of extra-uterine life. Premature separation of the whole ovum with internal hæmorrhage, not a drop escaping from the vagina, has been recorded by **Schütz**.

DISEASES OF THE SKIN.

BY MALCOLM MORRIS, F.R.C.S.E.,

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Introduction.—In the dermatological world the great event of the past year was the meeting of the Second International Congress of Dermatology, which was held at Vienna in the beginning of September, under the presidency of Professor Kaposi. Although, owing to the difficulties of travel caused by the cholera epidemic, the attendance was not so large as had been expected, the gathering was, both from the scientific and the social point of view, an unqualified success. The importance of the Congress was officially recognised by the presence at the inaugural meeting of the Rector Magnificus of the University, and the Bürgermeister of the city, who cordially welcomed the members in the name of the academic and municipal authorities respectively. Both at Vienna and at Buda-Pest, which was visited after the formal close of the Congress, the members were entertained with the most splendid hospitality, public and private, and everything was done to make their short stay pleasant as well as intellectually profitable.

1. Dermatitis herpetiformis developing after severe mental emotion and shock.

George T. Elliot (*Journal Cut. and Gen.-Urin. Dis.*, vol. ix., Sept., 1891) records two cases of this condition, giving the notes of one at considerable length. In their course, clinical symptomatology, objective and subjective manifestations, they presented in a most decided manner the characteristics attached to the disease by **Duhring**, and later by **Brocq**; and they possessed, moreover, a stamp of individuality which entitled them to be considered as examples of some distinct morbid process, and not as typical cases of some cutaneous disease or another, such as erythema, eczema, or pemphigus. The important and interesting feature is that in each case a precise ætiological factor—a severe mental shock and emotion—immediately preceded the appearance of the disease, and could be accused as the determining and active cause of its development. The author mentions eight other recorded instances falling into the same category. He refers to the

determination of functional and even organic diseases of the nervous system by a similar agency, and quotes Leloir's belief that predisposition plays an important part, the conditions necessary being the nervous and impressionable state of the subject or a predisposition to the dermatosis, so that, whereas in a healthy person the cutaneous neurosis produced by a mental shock would only be transitory, yet in one predisposed the process would be more accentuated, intense, and permanent. Elliot believes that *all* cases of dermatitis herpetiformis represent dermato-neuroses of one grade or another, and that in all a disturbance of the nervous system is the important and essential ætiological factor. The nature of the nervous lesion and its localisation are at present problematical.

The disease which forms the subject of these papers, though now recognised by most dermatologists as a distinct pathological entity, is still very imperfectly understood in its clinical as well as its ætiological relations. As to its causation, all that can be said with certainty is that in the great majority of cases the outbreak of the disease is preceded by a definite nervous shock or long-continued depressing influences. As in all other diseases, some predisposition is necessary before the exciting cause can produce its effect; and in the case of the disease under consideration, the susceptibility of the patient is probably conditioned simply by loss of nerve force. Clinically the distinctive feature of dermatitis herpetiformis is the multiformity of the lesions, which makes it present the appearance of a combination of several different affections; this diversity of its manifestations long concealed the essential unity of the process, and made rational therapeutics impossible. At present all that can be done is to endeavour to restore the nervous equilibrium by general medication, and to relieve local symptoms by appropriate measures; but now that observation seems to have been directed into the right channel, it may be hoped that an effective method of treating this distressing malady will be discovered.

2. Dermatitis herpetiformis.

Elliot (*N. Y. Med. Journal*, May 28, 1892) reports some further cases of this disease. In the two cases previously reported by him (*vide supra*), the origin of the disease could be traced directly to the reception of a severe mental and moral shock. The conclusion drawn was that the *raison d'être* of the process on the skin was a disturbance of some kind brought about in the nervous system by the ætiological factors in existence, and thence transmitted to the cutaneous surface. He regarded these cases as dermato-neuroses.

From the analysis of eight cases reported, he formulates the following conclusions :—

(1) That in the production of the dermatitis there are two factors in operation—a predisposition of itself not productive of the process, and an existing cause capable of provoking the disease on account of the existence of the former.

(2) The predisposition, present by nature or acquired through the influence of various causes, is constituted by a state or condition other than normal of the nervous system.

(3) The exciting factor need not be a constant one, but may be of the most various character, nature, and intensity, its power to call the disease into existence being, however, dependent upon the state of predisposition of the patient.

As a result of these conclusions, he would therefore regard dermatitis herpetiformis not as a specific disease, always the product of a single or specific agent or cause, but as the outcome of any number of causes of the most varied character acting upon an individual possessing a certain amount of predisposition.

With regard to treatment, Eliot says his experience has shown that there is no remedy, drug, or form of treatment which exercises any specific influence over the process. The good results are to be obtained by either removing or counter-acting the ætiological influences that had been at work.

If this can be done by appropriate internal treatment, then the remedies indicated should be exhibited ; or if it requires change of scene, surroundings, and occupation, then recourse should be had to these. At the same time any functional or other systemic disturbance should be attended to, and the patient's condition be brought, as far as possible, up to the normal. As to the local treatment, Eliot has obtained the best results with ichthyol. He used it in the form of a lotion (25—50 gr. and \mathfrak{z} i. water) or the following :—

R	Ichthyol. ammon. . . . .	...	...	...	...	30-40 gr.
	Ol. amygdal. dulc. . . . .	...	...	...	...	} āā 3 ss.
	Aq. calcis . . . . .	...	...	...	...

This was rubbed in thoroughly several times daily, and allowed to remain on the surface ; or sheet lint saturated in it was wrapped around and retained in place with bandages. The treatment was also combined with frequent baths of starch, or of starch and bicarbonate of sodium.

3. *Hydroa vacciniforme* (Bazin): **Hutchinson's summer disease.**

Buri (*Monatsh. für Prakt. Dermat.*, Sept., 1891) describes a case

of this disease. The lesion appeared on the face, hands, and fore-arms, and began, as such cases do, in the early summer, passed away in a few months, only to recur again next year at the same time. Buri's account of the general course of the eruption is as follows:—Small hard nodules, lying in the skin, increase peripherally on the surface, and rise gradually above the level. The centre becomes clearer and transparent, as if it contained fluid. It is at first clear, but later assumes a darker colour, becomes brownish, and finally dark brown. This discoloration spreads centrifugally, until the whole efflorescence is converted into a brown mass. If the crust be removed by scratching, which is not always feasible, an oozing ulceration is exposed, of somewhat deep extension. Under appropriate treatment (zinc ichthyol salve mull, and later exfoliation produced by resorcin paste) healing takes place, but results generally in the production of a variola-like pock-mark.

Bazin describes an affection in the following terms, which without doubt is the same disease as that more recently described and named by Hutchinson:—

“*Hydroa vacciniforme* is a rare and little-known affection. The majority of the cases were taken for syphilis or scrofula. They were of long duration, and resisted the most varied methods of treatment.

“Symptoms: *hydroa vacciniforme* appears first after exposure to fresh air, or to the rays of a powerful sun. Some feeling of malaise and loss of appetite often accompanies the outbreak. The eruption shows itself primarily on the unclothed parts of the body, especially the nose, cheeks, hands, and later on the other parts.

“Red patches are first noticed, on which transparent vesicles, like the vesicles of herpes, soon appear. From the second day the vesicles present a distinct central dell; they soon lose their transparency, and at this moment resemble exactly a variola or vaccine pustule; in a short time a crust forms, extending from the centre towards the periphery. In some patients the numerous scars give a distinct impression of a previous variola, in others the sero-purulent secretion and the thick crust would lead to the belief that the case was one of impetigo, did not a few isolated outlying efflorescences in course of development prevent such an error. The affection often drags on for months, owing to the constant development of fresh eruptions; in one case it lasted six months continuously. Relapses are frequent, originating under the influence of changes of temperature. In the majority of the cases, affections of gouty nature preceded or accompanied the disease.”

4. Styptic colloid in eczema.

B. W. Richardson ("The Asclepiad," vol. viii. p. 338, 1891) writes :—"Shortly after I first began to bring styptic colloid into practice, I employed it as an external application in eczema; and I have continued the practice until the present time, with every reason for satisfaction. In one instance I painted three parts of the surface of the body of a patient suffering from subacute eczema with the colloid, and by that means afforded a relief which every previous application had failed to give. The colloid may be freely applied with a soft brush over the affected surface. It forms a loose scale mingled with the cutaneous scales and exudation; it causes no irritation, and it may be repeated once daily as long as it is required. Applied to the face it lessens rather than increases the disfiguration. It desquamates, so to speak, from the part covered with it, leaving ultimately a natural surface beneath without sign of scar or mark."

In Squire's "Companion to the British Pharmacopœia," styptic colloid is stated to consist of "a saturated solution of tannic acid and xyloidine or gun-cotton in absolute alcohol and pure ether. In the first step of the process the tannic acid, rendered as pure as it can be, is treated with absolute alcohol, and digested in it for several days. Then the pure ether, also absolute, is added, until the whole of the thick alcoholic mixture is rendered quite fluid. Lastly, the xyloidine is added until it ceases readily to dissolve. A little benzoin may be added to give an agreeable odour to the colloid.

"It can be applied directly with a brush, or mixed with an equal quantity of ether, and used in the form of a spray."

5. Psoriasis.

Polotebnoff (*Ergänzungsheft d. Monatsh. für prakt. Derm.*, 1891) expresses the opinion that psoriasis is nothing more than the result of nervous disturbances of various kinds—being, in other words, a neurosis of the skin.

It must be conceded that all theories hitherto advanced regarding the ætiology of this affection have not yielded a satisfactory or convincing solution of the question. Polotebnoff discusses the various hypotheses put forward, clearly showing that none of them is quite sufficient to solve all difficulties. He mentions heredity, parasitic influences (Lang's theory), hereditary syphilis (Er. Wilson), then arthritism, and the herpetic diathesis as advocated by the French school, acute infectious diseases, intemperance, etc.; and after giving to each due consideration, proceeds to expound his own opinion.

The anatomical conditions in psoriasis have been carefully and

frequently examined, and we now know (1) that it is not an inflammatory process; (2) that it is connected with dilatation of the vessels of the papillæ of the skin; (3) that it is accompanied by an increase in the formation of epithelial cells. Changes in the nerve tissues have indeed hitherto not been described, but this is probably due to their not having been sought for properly.

Polotebnoff's clinical cases are highly instructive. Generally it is stated that patients with psoriasis are otherwise usually robust and healthy persons. This is entirely disproved by these observations. A selection of some twenty-eight cases is given in the German paper, the original Russian publication comprising sixty-seven. For the purpose of a more ready comprehension they are grouped in eight classes.

The chief point of interest lies in the nature of the nervous symptoms. These comprise severe headache, remarkable neuropathic affections in members of the same family, and coincidence of appearance of the eruption with some severe psychical shock, evident clinical abnormalities in the nervous system, diseases of bones and joints, typhoid fever, injuries of the head, intemperance, and minor neuropathic symptoms.

He divides his groups as follows:—

Group I. Severe headache, predominant complaint.

Group II. Neurasthenia. Psoriasis coincident with nervous trouble.

Group III. Influence of psychical disturbance.

Group IV. Diseases of bones and joints.

Group V. Psoriasis in connection with typhoid fever.

Group VI. Injuries of the head.

Group VII. Alcoholism.

Group VIII. Nerve changes only found on special examination.

He classes the symptoms in his cases as (a) vaso-motor, (b) functional, neuroses. They refer chiefly to the action of the heart and blood-vessels, the temperature, and the action of the sweat-glands. Perspiration is entirely absent from the diseased spots, and after some time the apparently healthy skin between the plaques also becomes dry. This is shown by injecting pilocarpin. No change is, however, to be detected in the sweat-glands.

Psoriasis must therefore be described as one of the multiple symptoms of a vaso-motor neurosis in which disturbances of the circulation of the blood make themselves evident in the skin.

Albuminuria is another symptom, as well as pains in various parts of the body and diseases of the joints and bones. He noticed that these pains and swellings of the joints generally coincided with aggravation of the nervous symptoms and fresh eruptions of

the skin disease. There is intense pruritus, and the sense of touch and temperature are more or less diminished, even to complete analgesia.

The treatment he directs almost entirely to the nervous system. Sea-bathing is very useful. Of medicines, the bromine salts of potassium and sodium and hydrobromide of quinine are the most useful. He also gives arsenic extensively, as this drug has been shown to have a special affinity for nerve tissues. The dose must be large, amounting to as much as $\frac{1}{2}$ a grain to 1 grain or more of arsenious acid a day, for a week or a fortnight. Ergot, he thinks, may be further tried. Cold packs, tar, chrysarobin, and pyrogallie acid have also been found useful.

I have thought to give Polotebnoff's views in detail as representing the result of a very elaborate investigation by an acute and painstaking observer; but while recognising the clinical value of the facts which he has collected, I cannot accept his theory of the pathogenesis of psoriasis.

6. Treatment of lichen planus.

Bulkley (*Journal Amer. Med. Assoc.*, Nov. 7, 1891) says that inasmuch as we know very little respecting the real causation of the disease, it is very difficult to give an intelligent explanation as to the lines to be pursued. We know, however, that the eruption is of a congestive and inflammatory nature, and appears to be due to a suboxidation process closely akin to that found in eczema and other inflammatory diseases of the skin.

Alkalies given with a free hand will not only serve to mitigate the sufferings of the patient, but also arrest the further development of the eruption. Bulkley recommends acetate of potash, with nux vomica and a bitter infusion, given after meals.

Boeck, of Christiania, advised 10 to 20 grains of chlorate of potash, dissolved in a large quantity of water, directly after each meal, followed in half an hour by 20 drops of dilute nitric acid, also well diluted.

After such a course a tonic is often necessary, and then sulphate of iron is the best, with sulphate of magnesia and sulphuric acid (Startin's mixture). Arsenic is, according to Bulkley, of very little use—indeed, in the more acute stages it seems to aggravate the eruption.

Locally, in acute cases, the calamine and zinc lotion, with an extra proportion of carbolic acid, gives great relief, and seems to check the eruption.

Ichthyol in a 2 to 4 per cent. watery solution, kept freely applied, is also grateful and beneficial. When the skin becomes dry, 1 or 2 per cent. carbolised vaseline is the best application.

In more chronic conditions, Unna's diachylon ointment, containing even as high as 4 per cent. carbolic acid, with bichloride of mercury added in slowly increasing quantity, beginning with 2 grains to the ounce, is very useful. This plan of treatment should be used with caution.

Alkaline baths, two or three times weekly, followed by the calamine and zinc lotion, or the carbolised vaseline, are often of much service.

My own experience certainly does not lead me to agree with Bulkley as to the inutility of arsenic in lichen planus. It must be given, as Kaposi directs, with no sparing hand, the constitutional effect of the drug being, of course, carefully watched at the same time. I agree with Besnier, however, that when the disease does not yield to arsenic when fairly tried, it is injudicious to push it.

7. Erythema multiforme.

Duhring (*Journal of Cut. and Gen.-Urin. Dis.*, Nov., 1892) describes a case of universal erythema multiforme, the chief points of which were as follows:—The disease was ushered in and accompanied throughout its entire course by pronounced constitutional symptoms; it was general, attacking the mucous membranes as well as the skin, and from the involvement of the throat and the persistent nausea and vomiting, it is highly probable that the whole alimentary canal was similarly invaded. The eruption became universal, and was of an erythematous type, with a tendency to papular and vesicular formation in certain localities, followed by extensive and complete exfoliation of the epidermis. The duration was three weeks, and there was itching throughout this period. The diagnosis at first was obscure, erythema multiforme not suggesting itself until somewhat later; while the subsequent exfoliation of epidermis indicated that the process was allied to dermatitis exfoliativa. Duhring regards the case as especially instructive, as showing how closely some of these erythematous affections are related, and how occasionally so-called diseases may blend.

8. Acne necrotica.

Touton (*Trans. Germ. Dermat. Soc. Congress*, iii., 1891) mentions a case under his care. Boeck first gave this name to the disease known as acne frontalis, and described by Hebra under the name of acne varioliformis. Touton's case occurred in an engineer, æt. 45, who had been twenty-three years in India, and returned to Europe suffering from dyspepsia. He was addicted to alcohol (4 or 8 fl. oz. of pure alcohol daily). On his recovery he returned to India, but in a month noticed two or three pimples on his face, and

lost appetite. Being syphilitic, mercury and iodide of potassium were given, and boric acid ointment applied. Improvement followed for a time, but the eruption again spread. He then returned to Europe, where acne was diagnosed. When Touton saw him his face looked as though pitted with small-pox. Between the depressed scars fatty shiny crusts were firmly attached to the underlying surface and surrounded by a zone of congestion. The whole facial integument showed an injected capillary network. On his chest were also scattered depressions, some of them covered with yellowish-brown crusts. He was treated internally with arsenic and externally with ointments (sulphur, white precipitate, resorcin, etc.), spirit lotions (resorcin), and sulphur baths. Alcohol was forbidden. He improved considerably. Touton examined very carefully an excised papule, the size of a hempseed, from the left frontal region, and one from the back the size of a lentil. The results of his observations may thus be summarised :—

There was round-celled infiltration with marked vascular distension in the upper and middle corium layers, especially in the neighbourhood of the hair-follicles, and also proliferation of connective tissue cells. These processes spread, extending to the epidermis, the line of demarcation between the epidermis and dermis being obliterated. The extensive accompanying exudation had induced stasis in the capillary network of the neighbouring papillæ, and actual hæmorrhages could be seen. This resulted in necrosis of the cutis and overlying epidermis, the cells of the latter becoming compressed and vacuolated by the exudation.

Touton describes no fewer than four kinds of micro-organisms: staphylococcus, tetracoccus, a short and a thick bacillus; as regards the last two, he questions whether they are distinct species. None of these were found in the corium or in the fundus of a hair-follicle near the primary focus of inflammation; on the contrary, they were chiefly in the upper layers of the crust and clustering around the orifices of the hair-follicles. Consequently, Touton regards their presence as secondary, and in all probability conditioned by the antecedent changes in cutis and epidermis.

Arguing from bromine and iodine acne, the writer favours the idea that the primary cause of the morbid process is some irritant conveyed to the blood-vessels supplying the hair-follicles, the sebaceous glands, and circumjacent dermic papillæ. Should pus micro-organisms be present, suppuration ensues. In acne necrotica, however, the inflammatory process speedily leads to blood-stasis and consequent necrosis *en masse*.

In the above case alcohol undoubtedly was the effective agent; the thickened walls of the vessels leading to the seat of

inflammation, their dilatation, and stasis and extravasation of blood were all evidence of alcoholic irritation. The micro-organisms no doubt caused the suppuration around old-standing crusts.

Touton admits, however, that acne necrotica may occur without any evidence of alcoholism, and alludes to the tendency of local skin necrosis in diabetes and syphilis especially as the result of syphilitic disease of the arterioles. The urine was not examined for sugar in any of his cases.

Finally, the writer reviews the literature of the subject. Hebra first described the disease; Boeck regarded his cases as identical with Hebra's; Leloir and Vidal called the disease acne rodens. Pick, of Prague, views acne varioliformis (Hebra) as different from acne necrotica. In the former the process of inflammation predominates, brown-red papules, vesicles, and pustules—resembling variola—being present, whereas, in the latter, necrosis is the characteristic feature.

Touton himself is inclined to regard his case as an extreme example, in point of rapidity of necrosis, of acne necrotica, but leaves it an open question how far the presence and character of the micro-organisms determine the inflammatory process (acne varioliformis) or the necrotic process (acne necrotica) of the disease known under those names.

9. Pityriasis rubra pilaris.

Galewski (*Trans. Germ. Dermat. Soc. Congress*, iii., 1891), from his observations on two cases, sums up as follows:—

(1) The lichen ruber of Robinson and Taylor is the same as pityriasis rubra pilaris of Devergie and Besnier, and this disease includes the benign forms of lichen ruber acuminatus (Kaposi).

(2) Pityriasis rubra pilaris is an exfoliative hyperkeratosis, and must be carefully distinguished from lichen planus (Wilson).

(3) The typical lichen ruber acuminatus (Hebra-Kaposi) is a disease *sui generis*.

(4) In any doubtful case arsenic should be administered, and the best local treatment is the application of salicylic acid ointment after prolonged baths, and of chrysarobin ointment at intervals.

In the discussion that followed, Neisser said that the models of pityriasis rubra pilaris shown at the Paris Dermatological Congress he had regarded as examples of lichen ruber acuminatus, and felt how much better the latter term typified the affection. Since then he had altered his opinion, and believed that the two affections were quite distinct: the one hyperkeratotic, the other inflammatory in nature. He thought keratosis follicularis rubra a preferable term to pityriasis rubra pilaris.

Galewski's second case again roused doubts in his mind.

Clinically it was a case of lichen ruber acuminatus, microscopically one of pityriasis rubra pilaris.

Kaposi referred to the opinion expressed by him at the Paris Dermatological Congress, viz., that the two diseases were the same, and that pityriasis rubra pilaris was modified lichen ruber acuminatus occurring in the hair-follicles. In answer to Neisser, he admitted that such cases as Galewski's second one would be examples of keratosis if they could not be included under the head of lichen ruber acuminatus.

Blaschko (Berlin) regarded the two affections as quite distinct. He viewed lichen pilaris, when especially well marked on the face, as identical with Taenzer's ulerythema ophryogenes. He considered that keratosis *sive* lichen pilaris, ichthyosis follicularis—recently described by Darier and others as psorospermosis cutanea—and pityriasis rubra pilaris should all be brought into the same category, viz., follicular keratoses or parakeratoses, in spite of ætiological and clinical differences. For the leading feature of each affection was disease of the hair-follicles resulting in excessive cornification.

Von Sehlen (Hanover) combated the idea that lichen pilaris facialis was the same as ulerythema ophryogenes. The former was simply hyperkeratosis, the latter essentially inflammatory in nature, ending in well-marked cicatrisation and originating in the glabella; hence the name of the affection.

10. Darier's disease.

Boeck (*Archiv. für Dermat. und Syph.*, xxiii. p. 857, 1891) describes four cases of Darier's "*Psorospermose folliculaire végétante*," or the keratosis follicularis of White.

The first case occurred in a robust man twenty-seven years old, and had commenced when he was ten years old, on the head. The eruption affected a considerable portion of the skin of the trunk, especially the back, the abdomen (from the navel to the pubes), the back and front of the neck, and the sternal region, and consisted of papular efflorescences, covered more or less with epidermic masses, and sometimes confluent into larger patches. On removing the epidermic masses, a moist surface with elongated papillæ appeared. The scalp was also covered with warty masses and thick fatty crusts, having almost the appearance of seborrhœic eczema. The backs of the hands and feet showed similar papular efflorescences, but covered with very firm and solid epidermic masses. The nails were also affected in a peculiar manner, being thickened, longitudinally striated, and somewhat brittle at the margins. The man had been under observation for several years,

and though his condition was somewhat improved by treatment in the hospital, he soon relapsed.

The three other cases were in the same family, viz., a father, aged forty-seven, and his two sons, aged eighteen and fourteen respectively. The disease commenced in the father at the age of sixteen, in the sons at eleven and eight. Two of the cases were perseveringly treated, but without permanent benefit.

All these cases agreed generally with each other and with the first case in the local distribution of the eruption, which affected more especially the scalp, the forehead, the axillæ, and inguinal regions, the lower part of the abdomen, the spinal region, the backs of the hands and corresponding parts of the feet. Boeck thinks that in general those parts of the skin are most affected where perspiration is abundant, and where the sweat tends to accumulate.

In all the cases it began on the head, *i.e.*, the scalp, the forehead, or the ears; and all the nails were more or less affected, even when the neighbouring parts of the skin were quite free.

The general health of all the patients was good. The disease began, as in most observed cases, in childhood or youth; and its duration was apparently not limited, except by the life of the patient, since no permanent improvement, either spontaneous or under treatment, was observed.

The results of microscopical examination show, Boeck maintains, that the disease is originally one of the epidermis, which undergoes hyperplasia, combined with premature and irregular keratosis of the cells, which is seen especially in the interpapillary processes of epidermis, and at the mouths of the hair-follicles, rarely around the orifices of sweat-glands. The interpapillary processes tend to pass downwards into the corium, and the papillæ of the latter may be elongated, but the latter is a secondary process.

He has given particular attention to the large round cells described by Darier as *coccidia*, which he finds abundantly in the altered epidermis, and arrives at the conclusion that they are only epidermic cells that have undergone an abnormal process of keratosis, accompanied by hypertrophy: the nucleus being in most of them distinctly traceable. He holds the same opinion about the smaller round or oval homogeneous bodies contained in his epidermic crusts, called by Darier grains. Boeck, although disposed to believe that *molluscum contagiosum* is a parasitic disease, altogether denies this character to Darier's disease. He thinks it most resembles a "*verrucosis*," and clinically it has much resemblance to some form of warts.

11. Lupus.

Payne (*Brit. Med. Assoc.*, 1891, *Brit. Journal of Dermat.*, Dec., 1891), in his introductory address on lupus, concludes as follows :—Lupus may be regarded as a very slow and chronic form of the tuberculous process, remaining for the most part local. It differs from other forms of tuberculous disease chiefly in its slowness, its feeble infectivity, and the paucity of tubercle bacilli. These differences may depend on the production of a weakened virus, or on the bacillus growing in unfavourable conditions. The lower temperature of the skin as compared with internal organs may be one reason. Next, internal tuberculous lesions give rise to fever, which is not the case with tuberculosis of the skin. The most favourable temperature for the growth of the bacillus is 100°, and though it will grow at lower temperatures the growth is slow.

The skin is not a favourable soil for the tubercle bacillus. Inoculated tubercle seems very often to die out without penetrating farther. The bacillary growth of scrofulous glands or subcutaneous nodes when it reaches the surface mostly dies off. Lupus on the surface of the extremities often dies off spontaneously, probably from the low temperature. The face is a more favourable soil on account of the congestions and disturbances of circulation caused by the special blood-supply of that region. When lupus is inveterate it seems to have almost lost its infective power, rarely producing new patches. As to its mode of infection, there are a few well-marked instances of the direct implantation of the bacillus by a wound. There is, however, quite another hypothesis—that of direct inheritance. The hereditary character of tuberculosis has been generally explained by the inheritance of a predisposition. Recently, however, it has been suggested, especially by Baumgarten, that the bacillus is directly inherited, like the virus of syphilis, from one parent or the other.

12. Case of lupus vulgaris cured by erysipelas.

Falkenberg (*Khirürgitcheskaja Letopis*, 1891, No. 2, p. 169), house surgeon to the Moscow Military Hospital, communicates the following remarkable case of “erysipelas medicatrix.” On May 3, 1891, a soldier, aged 24, was sent to the hospital in order to be subjected to a course of tuberculin treatment for facial lupus. On examination the whole left side of his nose, the nasal septum, and the adjacent areas of the upper lip and cheek were found to be congested, infiltrated, and covered with thick scabs, nodules, and small ulcers, the latter presenting elevated, uneven edges, “as if eaten out.” The axillary glands on the left side were slightly enlarged, but otherwise nothing abnormal could be detected

about any organs. According to the patient's statement he was the offspring of a healthy family, and himself had remained well until a year and a half previously, when he had noticed a small "pimple" on the left side of the nose. He squeezed it out, but the nodule never healed, while there gradually cropped out fresh tubercles, which ultimately involved the whole area mentioned above, some of them breaking up and forming ulcers. From Jan. 16, 1891, up to the time of the admission, the young man was treated with an ointment of white precipitate and subnitrate of bismuth, then with mercurial plasters, and ultimately with subcutaneous injections of an iodoform and guaiacol emulsion (with vaseline and olive-oil), the disease continuing to progress notwithstanding all these measures.

On May 12 (before any injection of tuberculin had been made) he fell ill with a severe attack of typical erysipelas, which commenced over the lupus area, but rapidly spread over the whole face and scalp, being accompanied by high fever (up to 41° C.), delirium, weak pulse, involuntary defæcation, etc. From the beginning of the attack the lupus region became intensely red and tumefied, while there appeared a constant discharge of a serous fluid which dried up into crusts; in other words, the local phenomena closely resembled those usually observed after injections of tuberculin. On the seventh day of the inflammation there was noticed some hæmorrhage from the lupus nodules. On the twelfth day the erysipelatoid process subsided, the patient's general convalescence, however, advancing rather slowly, and being somewhat retarded by the consecutive formation of three abscesses on the left side (in the temporal and submaxillary regions and on the cheek). On June 11 all crusts fell away, leaving a sound surface. When shown to a medical society, on June 27, the patient proved to be absolutely free from any lupus lesions. The site of the ulcers was occupied by radiated, somewhat depressed scars, the intervening and surrounding skin being smooth, soft, and pliable. The nose retained quite its normal form.

The effect of erysipelas on lupus may be compared with that of Koch's tuberculin, the process in both instances consisting in intense inflammatory reaction to an irritant of microbic origin. In the "Year-Book of Treatment for 1892" I stated that of the twelve cases in which I had fully tried tuberculin, there was not one which had not relapsed to a condition as bad as before the treatment. I am happy to be able to give a much more encouraging report this year. Ten of the twelve cases referred to were operated on by the ordinary methods of procedure, and there has since been no recurrence of the disease; they are all

very much better than they were before the tuberculin treatment, and may be looked upon as practically cured. The remaining two cases have been lost sight of. These results seem to show that while tuberculin by itself cannot cure lupus, it so modifies the process that surgical treatment has a much better chance of success than it would otherwise have had.

13. Treatment of lupus in disseminated nodules.

William Dubreuil, Bordeaux (*Brit. Journ. of Derm.*, Oct., 1892).—Amongst the innumerable phases presented by common lupus, particularly when it is developed on the face, the author pointed out that there is a special kind where the nodules recur with a constancy quite characteristic. It is one in which a little surface of cicatrix, reddish and infiltrated, is always covered with small and isolated nodules. In this case the tubercles are not all superficial; there are also some deep and invisible ones, and those that are seen are often only the top of a bunch or a chain of tubercles more or less deeply embedded in the derma, sometimes in very opposite directions.

As for the method of treatment generally adopted in such cases, scarification seemed to be a great deal too diffuse; it cannot always be confined to the diseased points, and requires to be too often repeated. Ignipuncture is certainly preferable; but with this means it is sometimes impossible to reach all the prolongations of the lesions, which will therefore rapidly reappear. The most advisable method, in Dubreuil's opinion, is the scraping one. This is done with very fine and delicate scrapers of a particular shape; and when these are handled carefully, somewhat like a gimlet, it is possible to enucleate the nodules and ferret out absolutely all their ramifications. The scraping should then be followed by a cauterisation with chloride of zinc, applied with a very fine woollen brush.

14. The treatment of lupus by thiosinamin.

Hebra (*Inter. Dermat. Congress, Vienna, 1892*) made some remarks on the action of thiosinamin, or amyl-sulpho-carbamide. Froschauer, in 1890, stated that animals could be rendered immune to bacillary infection by subcutaneous injection of amyl-sulpho-carbamide. This, however, was found to be incorrect. Hebra tried its action on cases of lupus. In all his cases the leading feature was the local reaction, unaccompanied by any general disturbance of the constitution. The local changes, about two hours after the injection, consist in reddening and swelling of the lupus site. Both these signs depend on the extent of the disease and the dose employed. These phenomena persist from six to eight hours, the

original colour not being re-established for twenty-four hours. Toleration of the drug did not arise, but after some time larger doses were sometimes necessary to produce an equal intensity of reaction—this was done to expedite the cure. Hebra is, however, not at all sure that the same dose might not have effected the same result over a longer interval of time.

On the day following the re-action considerable desquamation takes place. All the lupus patches are covered with scales, but the adjacent healthy skin is unaltered. General symptoms are never manifest, and on no occasion has any febrile disturbance been detected. If the dose was too rapidly increased, there were in one or two cases some discomfort and bilious vomiting.

As regards the beneficial effects of the medicament, the changes in the lupus patch bear witness after a few injections. Lupus tumidus, for instance, becomes much less prominent, the protuberances become smaller, and the whole area sinks considerably. In ulcerative lupus the thickened margins decrease, and in a few weeks' time the healing process is established, after vain endeavours to do so by external remedies.

The lupus nodules offer the greatest resistance, owing doubtless to the paucity of their blood-supply. As both the tuberos and the ulcerative forms of lupus on improvement tend to pass into the so-called leathery form, it is possible that the effects of the drug are less beneficial in this stage. In any case Hebra declared himself unable to say whether lupus can be completely cured by this agent. That there is improvement could, he said, be easily perceived in the cases which he showed.

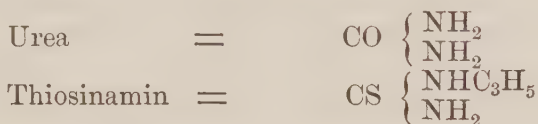
The results as regards the *cicatricial tissue* following spontaneous ulceration of lupus as well as the application of caustics are much more striking. Wherever such tissue, either from pressure or traction, disturbs nutrition or impedes movement, a complete *softening and loosening* ensues on the administration of the drug. This is most noteworthy in cases of ectropion due to lupus of the cheeks and eyelids. Here, where the disfigurement is great, in the course of a few months the ectropion disappears completely.

In chronic glandular swellings also the local reaction follows rapidly. The indistinct masses break down into isolated nodules. This is best seen in tubercular subjects; but even if there is no suspicion of tubercle, the swollen cervical glands gradually subside. Syphilitic affections of the glands do not undergo any modification. The drug increases the secretion of the urine; albumen and morbid changes in the kidneys have, however, never been noticed. The appetite was improved, the weight of the patient

increased, and the general appearance much improved. No abscess occurred at the site of injection.

The drug used is obtained from the volatile oil of mustard, and is termed amyli-sulpho-carbamide, or thiosinamin. It is prepared by taking two parts of volatile oil of mustard, one part of absolute alcohol, and seven parts of liquor ammoniæ, sp. gr. 960. These are heated in a water bath to 40° C. and concentrated for some hours. The odour of the oil of mustard as well as that of the ammonia disappears, and on cooling, crystals of thiosinamin separate out.

Representing these by chemical formulæ,



it is seen that the O of the carboxyl is replaced by S, and in place of an atom of H in the amine group, the radical amyl C_3H_5 is introduced.

As in all preparations of mustard oil, the addition of water must be avoided, and consequently ether or alcohol must be used as solvents for thiosinamin.

Hebra sums up:—Thiosinamin is a crystalline chemical product of constant composition, which, when administered subcutaneously, produces a local reaction without any general disturbance of the system.

It has a favourable influence over lupus tissue.

It renders cicatricial tissues soft and pliable, so that various distortions previously present are removed.

It has a specific action in diminishing glandular swellings.

It tends to clear nebulæ of the cornea.

It favours the absorption of exudation products.

15. Research on the combined action of the bacillus of Koch, and suppurative agents in the course of lupus vulgaris.

Leloir and Tavernier (*Jour. des Maladies Cutanées et Syphilitiques*, Oct., 1891) believe there are two microbic processes in lupus. (1) Neoplastic: microbe, tubercle bacillus. (2) Suppurative: microbe, staphylococcus aureus. Non-ulcerative lupus does not contain the staphylococcus, therefore does not ulcerate; ulcerative lupus does contain the staphylococcus, and therefore ulcerates. This is Leloir's reasoning.

It is a practical belief with him, his whole treatment of lupus being based on it.

Leloir formerly regarded the pus-organisms as "*microbes gendarmes vis à vis du bacille de Koch*." Taking this view, his treatment of lupus was to produce inflammation-suppurative to get the tubercle bacilli "arrested," and the lupus-process stopped. But experience has shown him the futility of this method. He got bad results in this way. The pus-organisms he found to be not "gendarmes" at all, but destroyers of tissue. His treatment (irritative) actually caused the disease in some cases to spread, with suppuration and ulceration.

When he based his treatment on his present view of the nature of lupus he got better results. He directs his efforts now against the staphylococcus, using anti-suppurative treatment, with excellent results, and he strongly recommends the method.

This view of lupus was taken by Leloir in November, 1890, and expounded in *Médecine Moderne* in the same month.

16. Local treatment of lupus with sulphurous acid.

A. J. Harrison, of Clifton (*Brit. Med. Journal*, August 6, 1892), has tried the following plan of local treatment in several cases of lupus, with results that he considers satisfactory:—An aqueous solution of hyposulphite of soda, gr. 40 to 3 i (No. 1 lotion, or night application), is applied to the affected parts by means of lint covered with gutta-percha tissue or oil-skin—the object being to saturate the tissues thoroughly with this soda salt. The next morning a lotion, consisting of pure hydrochloric acid (*B.P.*) m v in water 3 i (No. 2, or day application) is applied. In this way a quantity of nascent sulphur and sulphurous acid is formed deep down in the diseased structures. The lotions are changed night and day, and the treatment must be continued for weeks. The result, according to the author, is that the lupoid tissue is destroyed, scabs and scales quickly disappear, and an ulcerated surface—which soon shows a tendency to heal—is obtained. At the meeting of the British Medical Association, where he read his paper, Harrison stated that he made no distinction of kind between lupus vulgaris and lupus erythematosus, believing that the disease depends on a microbe or bacillus, not distinguishable microscopically from Koch's bacillus.

It was pointed out at the time that the cases (photographs of which were exhibited) were not really cured, apple-jelly nodules being distinctly visible in some of them. The results of Leloir and Tavernier's research, reported above, afford a key to the apparent success of Harrison's treatment. The nascent sulphurous acid killed the staphylococcus aureus, and thereby stopped the suppurative process and the consequent ulceration, leaving

untouched, however, the tubercle bacillus and the specific process (*i.e.*, true lupus) of which it is the cause.

17. Euphorin.

G. Peroni and R. Bovero (*Giornale della Accademia di Medicina di Torino*, 6, 1891) have experimented with this drug, and come to the following conclusions:—(1) Euphorin almost aborts the suppurative process in breaches of continuity; (2) it removes in a very short time the stench that accompanies some syphilitic sores; (3) it hinders the propagation of the poison from syphilitic ulcers to the inguinal glands; (4) it has a not inconsiderable analgesic effect. (*D. Medizinal-Zeitung*, 5, 1892.)

18. Trichloracetic acid as a remedy in some skin diseases.

Lanz, of Moscow (*Monatsh. für prakt. Derm.*, Bd. xiii., 7), has revived the use of this almost forgotten caustic with very good results. A 20 per cent. solution, applied through the endoscope, in chronic gonorrhœa caused much less irritation than much weaker solutions of silver nitrate. When applied undiluted to papillomata it formed at once a white, dry, adherent scab, which fell off after a few days, leaving a clean granulating surface behind. In larger papillomata it is necessary to repeat the application. Warts undergo the same process and fall off after a few applications. Nævi and pigmentation patches have also been successfully treated by painting on the pure acid or diluted solutions.

19. Epilation: its range and usefulness.

Zeisler (*Journal Cut. and Gen.-Urin. Dis.*, Dec., 1891) says it is only since Wertheim's recommendation, about thirty years ago, that epilation has become generally accepted as a standard plan of treating sycosis. He uses a pair of forceps with narrow blades and smooth inside surfaces, which fit closely together. The hair about to be removed should be clipped short—one hair only at a time should be seized, close where the shaft leaves the follicle. Traction should be made in the direction in which the hair is implanted in the skin—it is best to select a small diseased area, and to clear it thoroughly from all the hair on it. Thick crusts and scabs should be previously removed by suitable means. The epilated hair is regenerated in a few weeks' time. A partial alopecia areata may result when deep phlegmonous processes or fungoid vegetations—vegetations with undermining abscesses—are present. The advantages gained by epilation are:—

(1) The removal of the several parasitic elements that may be embedded in the hair-shaft.

(2) In laying open the follicles, which permits of a deeper reaching effect of any parasiticidal agent employed.

(3) In removing the hair to do away with a source of irritation to the surrounding tissues.

(4) We may remove, as a preventive measure, hitherto unaffected hair, to prevent the spread of the disease.

The diseases it is useful in are :—

(1) Ordinary sycosis, or, as Bockhart named it, sycosis coccogenes. In spite of the objections raised by Unna and Rosenthal against this mode of treatment, Zeisler says he would rather give up all adjuvant treatment by ointments, lotions, etc., than his epilation forceps. He, of course, uses the former as well as the latter.

(2) Sycosis capillitii.—He has notes of three cases of this disease in which the growth of the hair was unusually copious, the individual hairs abnormally thick, the hairs growing very close together in the form of a tuft.

(3) Sycosis vibrissarum.

(4) Favus.

(5) Tinea tonsurans.

(6) Certain forms of pustular eczema.

(7) Alopecia areata.

20. New ointment bases.

Schleich (*Deutsche Med. Zeit.*, Dec. 7, 1891) introduces a preparation of yellow bees-wax and water. It is creamy, salve-like, and smells of honey. It is antiseptic, and does not turn rancid. On drying, the pure wax alone is left. Under its influence wounds granulate freely, and the surrounding skin is never irritated. The drying of the thin layer over the wound, and the mingling of the wax with the secretions and proliferating epithelium, bring about the formation of an excellent dry antiseptic scab; and its utility in this direction is increased by the facility with which it mixes with iodoform, dermatol, sulphur, ichthyol, sublimate, etc., the drugs being brought into close connection with the open or diseased surfaces. A thin layer, protected by a bandage if necessary, should be rubbed over the diseased part. It can be readily washed off. This simple paste forms an excellent dressing for burns, young scars, recent wounds, dry eczemas, ulcers of the leg, and for promoting the healing of healthy granulations.

Æsypus.—This wool fat, the raw product from which lanolin is prepared, is highly spoken of by Ihle and Taenzer (*Monatsh. für prakt. Derm.*, 13, Bd. xiii., No. 10, 1891) as an excellent ointment basis. It contains many substances, especially ethereal oils, which are removed in the preparation of lanolin, and which seem to lend it some healing properties of its own. Anhydrous lanolin irritates the skin, probably by extracting water from it,

whilst œsypus, on the contrary, relieves itching and “fattens” the skin without causing any irritating by-effects. Its smell is disagreeable, but as it costs only 1 mark per kilo (not quite $5\frac{1}{2}$ d. per pound) it constitutes a cheap salve constituent for poor-class patients. Taenzer prefers to mix it with equal parts of olive oil, and when thickened with powder (zinc oxide, starch, kieselgur, magnesia carbonate, etc.) this mixture makes an excellent paste, which may be used with good effect in burns and all other kinds of oozing eruptions (eczemas, burns, impetigo). In eczema impetiginosum it is almost a specific. Mixed with salicylic acid, orcin, resorcin, or bismuth subnitrate, *e.g.* :

R	Bismuth. subnit.	...	...	...	...	...	5.0
	Zinci oxidi	...	...	...	...	...	20.0
	Æsypi and ol. oliv. āā q.s. ut ft. pasta.						

it forms a good remedy for sycosis coccogenes, especially when combined with epilation of the surrounding hairs, and abstention from washing and shaving.

In eczema of the face in children, a simple mixture such as

R	Æsypi, ol. oliv.	...	...	...	...	...	āā 10
	Amyli...	...	...	...	...	...	20-25

is sufficient when the surface is oozing, but for the dry form grey zinc dust may be added, with good effect on the obstinate papular infiltration. One layer must be simply smeared over the other without any attempt to cleanse the skin.

In burns and scalds the effect is both soothing and healing, especially if it be applied at once.

Ihle finds undiluted œsypus of great benefit in burns, but more particularly useful in the itching eczema of children. If simply smeared on, it softens the skin and scabs, and as it cannot be wholly removed by the little patients by means of rubbing and scratching, bandaging is rendered superfluous. A similar treatment also suffices in many cases of impetigo contagiosa. When the surface is once cleansed, it is better to continue the treatment with pastes. In some bad cases of prurigo (Hebra) and many cases of pruritus the relief obtained has been prompt.

Thilarin—Saalfeld (*Therap. Monat.*, Nov., 1891) finds in this compound of lanolin and sulphur a substitute for the ol. lini sulfuratum. Mr. Seibel has succeeded in incorporating 3 per cent. of sulphur with lanolin to form a yellowish-brown compound of the same consistency as lanolin. It is quite as unirritating and more energetic in action than Hebra's diachylon ointment and

Elliot points out that Pick's bassorin varnish contains all the other constituents of gum tragacanth. Unna and Beiersdorf obtained the bassorin simply and chiefly from salep (the prepared bulb of orchis mascula); but Lassar had already discarded this source, because there was an admixture of starch, which caused the paste to become sour very rapidly.

Elliot now presents his more matured experience of the value of this remedy. During the heat of summer his bassorin paste is of limited use, as it does not dry completely, owing to the admixture of perspiration, especially between folds of skin. The addition of 5 to 10 per cent. of zinc oxide, or amylum, or orris, etc., somewhat obviated this difficulty. In colder weather the cleanliness and absence of greasiness make it an agreeable preparation in private practice.

In psoriasis this method of treatment was disappointing, when chrysarobin (10 to 15 per cent.), or pyrogallie acid (5 to 10 per cent.), or ol. rusci (3j—iss. in 3j) was used. A 10 per cent. gallacetophenone-bassorin paste gave good results in one case. In certain cases of acne, where acutely-inflamed papulo-pustules and pustules predominated, a varnish containing zinc oxide, grs. xx, magnesiae carbonatis, grs. xv, acidi borici, grs. xxx, bassorin paste, 3j, and applied at night, had a capital effect. As the acute symptoms subsided, 3 to 6 per cent. ichthyol, or 6 to 10 per cent. sulphur, etc., was added. In rosacea of various origin, the bassorin was also very serviceable as the basis of local treatment. Suitable internal remedies associated with the application of an ichthyol or a sulphur-bassorin paste, either alone at night or combined with a resorcin or boric acid lotion in the day-time, and daily washing with soap and water, gave as good results as any Elliot used. In the form originating from seborrhœic eczema the effect of bassorin-resorcin, or bassorin-aristol, or sulphur, was particularly brilliant and rapid. In all the forms of seborrhœic eczema on non-hairy surfaces the bassorin was superior to any other menstruum. So also in parasitic eczemas and others superficial in seat. In chronic thickened eczema only the itching was relieved. In pruritus it was most useful, also in tinea circinata, and especially tinea versicolor.

Epidermin as an ointment base.—Kohn (*Intern. Klin. Rundsch.*, Nov. 15, 1892) strongly recommends epidermin as a new basis for ointments, as it combines all the advantages of all the other bases, and can be mixed with any drug. It causes no irritation, is aseptic, and does not decompose. Epidermin is a mixture of glycerine, water, and beeswax, rubbed together to form a liniment. It is a milky, semi-fluid mixture. It dries

in the air, and if painted on the skin soon forms a firm elastic layer, which, owing to the glycerine, is very pliable, and contains the drug used in a finely-divided state. Epidermin can be easily prepared, but it requires a certain amount of skill to prepare the mixture with drugs. Large quantities of any required drug can be incorporated, and it can be accurately applied to small situations, as the eyelids, lips, nose, corona glandis, between toes and fingers. Here it shows its superiority to traumaticin (gutta-percha dissolved in chloroform), as the latter is irritating, and can only be mixed with a limited number of drugs.

Substances with difficulty soluble in water or quite insoluble, *e.g.*, chrysarobin, zinc oxide, sulphur, mercury præcipit., bismuth, iodoform, and iodol, can be accurately mixed with epidermin without undergoing any change in composition. It can be applied to large surfaces without causing any inconvenience, as also in diseases where there is great irritation of the skin, as it produces a feeling of coolness and relief. It is preferable to the lin. exsiccans Pick, as the latter is very prone to decompose, and sometimes also has a very irritating effect. Epidermin, if painted on the skin, lasts for one to three days, requires no bandage, saves the unpleasant feeling caused by greasy ointments, and does not soil the clothes after drying, even if chrysarobin or other like staining drugs are used. Epidermin can be easily washed off with water.

Kohn sums up the cases in which he has found it useful :—

(1) Plain epidermin, in small excoriations and fissures (lips).
 (2) Zinc-oxide-epidermin (5 to 30 per cent.) in moderately dry eczemas, also as means of allaying irritation and itching after the use of more irritating drugs (chrysarobin).

(3) Tumenol-epidermin (10 per cent.) in weeping eczemas with itching.

(4) Resorcin-epidermin (2 per cent.) in weeping eczemas, and especially in boils.

(5) Chrysarobin-epidermin (10 per cent.), in psoriasis vulgaris, painted on every second or third day; also in parasitic eczemas and mycosis furfuracea, marginata, tonsurans.

(6) Sulphur-resorcin-salicyl.-epidermin (acid salicyl.-resorcin $\bar{a}\bar{a}$ 5 per cent., sulphur præcip. 10 per cent.) in sycosis and eczema seborrhœicum.

(7) Epidermin with pyrogallol. (5 to 10 per cent.) in impetigo contagiosa.

(8) Epidermin with ol. fagi (10 per cent.) in squamous eczema.

(9) Epidermin with plumbum iodat. (10 to 30 per cent.) as an absorbent in glandular swelling and inflamed testicle.

(10) Epidermin with bismuth, mercur. præcipit. alb. (āā 5 to 10 per cent.) to remove pigmentation as in chloasma ephilidin.

(11) Iodoform-epidermin (10 to 20 per cent.) for boils and burns.

(12) Epidermin with acid. salicyl. creasote, ol. fagi (āā 5 per cent.) in lupus vulgaris.

(13) Corrosive-sublimate-epidermin (1 per cent.) for mucous tubercles and boils.

(14) Ichthyol-epidermin in erysipelas, acne rosacea, congelatio, perniones.

DISEASES OF THE EYE.

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THE most important contributions to ophthalmology in the course of the year 1892 have been Dr. J. Hirschberg's "Einführung in der Augenheilkunde," the first part of which, occupied chiefly with the subject of refraction, has just appeared. The introductory chapter is devoted to local remedies and their mode of application. A good French translation of Dr. Fuchs' "Handbuch der Ophthalmologie" has been made by Drs. Lacompte and Leplat. New editions of Swanzy's and Vossius' works have been published.

1. Ectropion of the upper eyelid in infants who have suffered from purulent conjunctivitis, and to whom little attention has been paid, is of not unfrequent occurrence in Egypt, and occurs occasionally in other countries. In a paper on this subject, published in the *Ophthalmic Review* (April, 1892), Dr. Kenneth Scott remarks that the application of a bandage over the reflected eyelid is useless, since it has to be frequently removed to allow the eyes to be bathed, whilst it increases the risk of the cornea becoming involved by interfering with the free escape of the purulent discharge. He has devised an efficient but simple method of treatment, which he employs in all such cases. It consists in replacing the everted eyelid and retaining it in its proper position by the introduction of a wire splint in the following manner:—The eyebrow and both surfaces of the eyelid are to be thoroughly cleansed, and a spatula placed under the lid in order to protect the eyeball. A half-curved needle is armed with a moderately thick silver wire and passed from the eyebrow downwards in the substance of the lid, emerging on the free palpebral margin between the eyelashes and the conjunctiva; the needle is again entered on the lid margin at a point about 4 mm. distant from the point of emergence, and passed upwards in the substance of the lid, parallel to the first part of the suture, and brought out on the eyebrow 4 mm. from the first point of entrance. No traction should be made, but the loop of silver wire exposed on the edges of the eyelid should be in close contact with the skin.

The free ends of the suture must then be fastened by twisting them together over a small piece of indiarubber or catgut. The eyelid is now to be moulded into its proper shape by bending the silver wire in the lid over the surface of the spatula. Two sutures may be employed, one towards either extremity of the lid. The silver wire should be allowed to remain in the lid for at least six days, and is easily removed by snipping the loop at the edge of the lids.

2. Dr. W. J. Killen (*New York Med. Journal*, July 9, 1892) has devised a pair of **chalazion forceps**, and remarks that every special practitioner on the eye knows from experience how inconvenient and clumsy it is to take the lid between the fingers, and the patient knows how very painful, even with cocain anæsthesia, it is to have the incision made through the ciliary margin into the chalazion. When the operation is simply an incision on the conjunctival side of the tumour with the use of a spoon, the unrestrained mobility of both the lid and the patient often renders the result unsatisfactory. His forceps are strong-shanked, the shanks being $3\frac{1}{2}$ inches long, ending in oval flat expansions having a diameter of five-eighths and three-eighths of an inch, one of the blades being fenestrated. The fixation attachment is such that the blades fit or catch together, while their ends are still a twelfth of an inch apart, which prevents too severe pressure on the lid.

3. A new method of operating for the cure of ptosis has been proposed by **Birnbacher** (*Centralblatt für praktische Augenheilkunde*, May, 1892, and *Ophthalmic Review*, July, 1892), which consists in making an incision through the skin along the whole length of the lid, corresponding to the upper edge of the tarsal cartilage, which is then cleared and pierced by three double-needed stout threads of silk. The middle one of these threads lies at the highest convexity of the tarsus, and the others at a distance of 7 mm. from it to right and left. The loops of thread are not knotted; both ends of the middle stitch are carried vertically upwards under the skin, to emerge close together in the eyebrow, and the other stitches are next treated similarly, but they are caused to incline somewhat away from the vertical, so that the points of emergence of the three are farther apart than the points of entrance. The three stitches are then tied over three iodoform pads, the guide as to the degree of tightness to which the stitches are drawn being that on closure of the eyes the upper and under lids can still touch. The skin wound is then closed with five fine silk threads. By this method, with the minimum of damage to the skin—for the points of emergence of the thread are hidden amongst the hairs of the eyebrows—several short cicatricial

bands are obtained which have little tendency to stretch, uniting tarsus to frontalis muscle. The threads are left in under antiseptic dressing for three weeks.

4. The affections of the lacrymal sac are amongst the most troublesome to treat, and are on the whole, perhaps, the most unsatisfactory in their results of any ophthalmic disease. Common in all countries, they appear to be exceptionally frequent in Portugal, both amongst the poor and amongst the better classes. Professor Gaura Pinto, of Lisbon, has given an account of his experience in the *Annales d'Oculistique* (Jan., 1892, p. 25), in which he remarks that the more he sees of such cases the more guarded he becomes in making a forecast of their termination. Though he feels it is almost a heresy to say so, he cannot but feel that the treatment of the canaliculi by catheterism, as introduced by Bowman and very generally practised, rarely gives perfectly satisfactory results, for the apparatus, damaged by the incision, no longer acts naturally as an exhausting pump, and an excess of moisture still remains in the inner canthus, even after the most successful treatment. He prefers to rely on simple catheterism without slitting up the canaliculus. Commencing with conical styles, he gradually enlarges the duct till it will admit a No. 5 of Bowman's probes. He thinks the use of very fine styles should be discarded. The catheterism is repeated every other day, and continued for about a month. If the case is not cured by that time he abandons all hope of a radical cure, and seeks only to diminish the secretion by the injection of sulphate of zinc or other astringent. In many cases the patient only complains of the tear in the angle of the eye, which requires to be frequently wiped away with the handkerchief. In some instances, however, there is a tendency to recurrent lacrymal abscess, either in consequence of the accumulation of the fluid secreted or of some osseous lesion. In such cases the Professor thinks the destruction of the lacrymal sac to be indicated, and proceeds to effect that object by making a vertical section along the anterior wall of the lacrymal sac throughout its whole length. The hæmorrhage being arrested, he cauterises the sac, either with the actual cautery or with some chemical agent. After the separation of the eschar, granulations quickly spring up, which soon cause cicatrization of the wound. He does not believe that the lacrymal sac is thus really completely destroyed, for although it diminishes in size and little or no deformity is observable, he finds that after a variable period the sac again begins to dilate and fills with fluid. In acute dacryocystitis he always opens the sac by an incision, scrapes the interior of the sac with a sharp-edged curette, and finally cauterises the

surface, exposed freely, with nitrate of silver. The reaction is rather violent, but after the lapse of three or four days the eschar falls off, and the wound is completely healed in less than a fortnight. In some of these cases complete restoration of the passage may be effected.

He particularly insists that, in an æsthetic point of view, this method of operating leaves nothing to be desired. Still, however, relapses do occur; and it suggested itself to him that if it were not possible to obliterate the sac, it might be possible to prevent the access of the lacrymal secretions to it, and this he proposes to accomplish by obliterating the puncta lacrimalia. To effect this he places the patient under chloroform, lays open the sac, scrapes its wall, and dresses it with wool to suppress hæmorrhage. The two lacrymal puncta are dilated with a conical sound, a loop of platinum is passed through them as far as the sac, which is then heated to redness by being connected with a galvano-cautery of Nieten's construction. The whole length of the canaliculi is thus cauterised. The wool is then removed, and the walls of the sac are cauterised with nitrate of silver or with chloride of zinc paste. Sharp reaction follows the next day, which gradually subsides, and little or no mark is left on the skin. The only objection to this method of treatment is that it leaves the patient *quoad* the tear in the same condition in which he was before surgical treatment was commenced, though it may undoubtedly prevent the occurrence of dacryo-cystitis; but, after all, these attacks do not often recur in the same person.

5. Professor Guaita, of Vienna, has in the same journal (*Annales d'Oculistique*, 1892, p. 30) discussed the **treatment of ectasia and fistula of the lacrymal sac**, and considers that the most efficacious mode of dealing with them is to scrape the surface of the sac, then to dilate the nasal canal, and finally to keep it open by keeping in it a style made of decalcified bone. He considers that scraping the surface of the sac cleans the surface, affords an opportunity of removing any portions of diseased bone, and constitutes the most important part of the treatment; the style hastens the cure by aiding the evacuation of the tears and permitting the application of sutures to the cutaneous wound. He uses for the style the long bones of the posterior extremities of toads, which he decalcifies by immersion for some days in a solution of hydrochloric acid containing 5 per cent. of the acid. The upper extremity forms a hook, which acts well in retaining the decalcified bone in position. In experiments on animals the organic base of the bone underwent complete absorption in the course of a fortnight. He has had thirty-one cases.

6. The obstinate character of **trachoma** or **granular lids** is well known. **Von Hippel** (*Bericht über d. Ophth. Gesellschaft, Heidelberg, 1891*) has been induced to give an extended trial to a method recommended by Keining, of Svest, which consists in rubbing into the everted lids a solution of corrosive sublimate containing 1 part of the salt in 2,000 of water. He had the opportunity of trying it upon more than 300 cases in the course of twelve months. In each instance a cocain solution was first instilled; the lids were then everted, and the conjunctival surface rubbed with a piece of cotton-wool dipped in the sublimate solution. When the conjunctiva was hyperæmic and swollen, the rubbing was much less energetically carried out than when it was cicatrised or less vascular. When possible, the contents of the trachoma bodies were squeezed out. The rubbings were practised daily. The results are stated to have been satisfactory, mild cases being cured with certainty, and severe cases sometimes cured and nearly always improved.

7. The frequency of **phlyctenular conjunctivitis in children** renders any hint in regard to its ætiology important. **V. Fukala** (*Archiv. für Augenheilkunde*, Bd. xxiii, Heft 3 and 4) maintains that a large proportion do not really suffer from general scrofulosis, though the term "scrofulous conjunctivitis" was formerly constantly applied to it. He believes that the chief causes are—first, defective organisation of the children due to heredity, as many proceed from parents who have suffered from tuberculosis, syphilis, cancer, organic disease of the heart, kidney and skin diseases; secondly, defective nutrition consequent on bad food and unhealthy hygienic surroundings; thirdly, it is associated with acute and chronic eczema of the face; fourthly, it is a consequence of acute infectious diseases, as scarlet fever and measles; fifthly, it is associated in some instances with inability to resist external influences consequent on delicate and imperfectly developed skin of the children; and, lastly, it may be associated with blepharitis, especially with the ulcerative form. Eczema is often present in the face, head, or body. Treatment directed to the blepharitis, such as touching the small ulcers with silver nitrate, is often effective in curing the ulcers of the cornea. In some instances he removes the border of the lid, which seems to be an extreme measure, and certainly should not be resorted to till all other measures have been tried and failed.

8. The employment of aqua chlori has long been recognised as a valuable aid in the **treatment of purulent ophthalmia**, and in an article published in the *Annales d'Oculistique* (Jan., 1892, p. 19) **Schmidt-Rimpler** advocates its use as an antiseptic in

operations and in wounds of the eye. He states that as long ago as 1877 he pricked the cornea of rabbits with an instrument charged with the products of secretion of chronic blennorrhagic dacryo-cystitis, and endeavoured to ascertain the effects of various solutions in diminishing the action of the virus on the cornea. Comparisons were made between aqua chlori, solution of salicylic acid, carbolic acid, thymol, permanganate of potash, and quinine, with the result that chlorinated water was the most potent of these antiseptics. More recent experiments by Koch and others, in which pure cultures were placed in contact with disinfecting solutions, have induced them to regard the solution of chlorine in water as one of the most potent antiseptics. Schmidt-Rimpler has found that it is a much more active agent than the perchloride of mercury in the ordinary strength of 1 to 5,000. Thus the same culture of *staphylococcus pyogenes aureus* which was rendered sterile by exposure for one minute to aqua chlori, retained its virulence in great measure after exposure for three minutes to a solution of the perchloride, whilst it required exposure for no less than ten minutes to render the secretion of inflamed lacrymal sac perfectly innocuous.

Schmidt-Rimpler has used the aqua chlori in 125 cases of extraction of cataract. The first twenty-five of these cases he operated on in Marburg, with the result that one eye was lost by suppuration; but in that instance the flap did not adapt itself satisfactorily, and alcoholic delirium rendered change of dressing necessary soon after the operation—the infection may, therefore, have been secondary. The remaining 100 operations were performed at Göttingen, and have recovered without accident of this nature, as have also 375 other operations, some of which were plastic. **M. A. v. Graefe**, who also uses aqua chlori largely, had only 0·93 per cent. cases of suppuration in 1,074 operations for cataract, though there were 4·7 per cent. of cases in which the vision was reduced to less than $\frac{1}{9}$, owing to corneal infiltration. Schmidt-Rimpler is satisfied that neither the fear of aqua chlori acting as an irritant to the eye, nor of its speedy decomposition when kept in stoppered bottles, is well founded. Far from irritating the cut edges of wounds or the conjunctiva, it produces less conjunctival secretion than the sublimate. It produces a slight burning sensation in the eye when applied, which can be relieved by the instillation of cocain. It is hæmostatic, and changes the colour of the blood to a light red. Some precautions may be taken to prevent decomposition. The flasks in which it is kept should not be of larger capacity than from 250 to 500 grammes. They should be well stoppered with glass or vulcanite

stoppers, and should not be exposed to air or light. The fluid in a flask which had been in use in the dispensary for several weeks still proved an active agent in sterilising the secretion of the lacrymal sac, and an analysis showed that it still contained 0.23 per cent. of chlorine instead of 4 per cent., which is the pharmacopœial strength. Its activity can be tested by the smell, and more exactly by litmus-paper, which it bleaches. Its expense is a slight objection to its use, but he has found that 250 grammes, which cost about fifteenpence, serve for ten operations.

9. Vaseline in gonorrhœal conjunctivitis has been warmly recommended by Dr. F. M. Wilson, of Bridgeport, Connecticut (*Transact. of the American Ophthalmological Society*, 1891, p. 236), who states that although it is an old remedy, having been employed almost as soon as it was discovered, yet that it does not appear to be in general use. He has had no less than forty-seven cases of purulent conjunctivitis, of which nineteen were infants. In all the cases cleanliness was considered the most important factor in the treatment, and iced cloths, atropine, saturated solution of boric acid, and vaseline were used. In many of the cases vaseline was used so freely that it might be said that the eyes were washed with vaseline. He employs the pure white vaseline which is contained in the artists' tubes, and to apply it the top is unscrewed and the mouth of the tube is inserted under the upper lid, not touching the cornea, the vaseline being well squeezed up into the *cul-de-sac* of the conjunctiva; he relies upon manipulation afterwards to extend it in the required directions. He does not regard it as a curative but as a protective application, and thinks that the usual antiseptic measures should not be neglected.

In the discussion that followed the reading of the paper, Dr. McKay and Dr. Noyes gave their experience in regard to the use of peroxide of hydrogen. Dr. McKay used one part of the peroxide to two parts of a ten-thousandth of bichloride, after cleaning the eye by thorough injection, and found that it seemed to saponify and remove the pus with great rapidity. Dr. Noyes also found that the peroxide has a wonderful power of controlling the secretion, but it leaves œdema and the destructive processes going on as rapidly as without its employment.

10. M. Pflüger, of Bern (*Annales d'Oculistique*. Année 55. Ser. Nouv. T. cviii., Livraison 3, p. 189), in a paper read before the French Congress of Ophthalmologists, strongly recommends the trichloride of iodine (ICl_3) as **an antiseptic in ocular affections**. He has found injections of its solutions in the proportion of 1 to 1,500 or 1 to 1,000 in water, made just before use, very

serviceable in cases of chronic uveitis proceeding from various causes, of choroiditis, of serous irido-choroiditis, and of plastic inflammations complicated with opacities of the vitreous. Solutions of the trichloride of iodine with the strength of 1 to 2,000 kill cultures of green pus in a minute; those of staphylococcus aureus in a minute; the spores of malignant pustule in five minutes; and blennorrhagic conjunctivitis is quite amenable to its action. He has also found it very serviceable in the treatment of follicular conjunctivitis, severe pustular affections, and in cases of ulcus serpens. The pain produced by its application is slight and transient.

11. At some period in the near future, as **M. Wecker** (*Archives d'Ophthalmologie*, t. xii., No. 4, p. 201) surmises, it will probably be shown that all **inflammatory affections of the cornea** are of microbic nature; that, in fact, their most common cause is an accidental lesion of the corneal tissue, or of its epithelial investment with a coincident or subsequent infection by germs, whilst these grow the more readily in proportion as they lie between the corneal lamellæ, and are, therefore, protected from dislodgment by the movements of the lids or by the flow of tears. At the same time the several diatheses, scrofulous or lymphatic, as the case may be, exercise a predisposing influence which affects the resistance offered by the cornea to the inroads of the germs. The experiments of various observers have shown that mechanical stimulation applied to the healthy non-vascular cornea is without effect, or produces only slight and transient opacity. No doubt if the violence done to the cornea be so great as to kill the tissue, auto-infection may take place without the presence of microbes from the necrosed parts, but clean cuts heal up without vascularisation or other sign of inflammation. It is of great importance, then, that in cases of lesions of the cornea the surgeon should not introduce germs in the course of his treatment, but that he should, as **M. Franke** (*v. Graefes Archiv.*, Bd. xxxvii., p. 91, Heft 2) recommends, use only aseptic collyria contained in sterilised flasks.

But even with all this care, and in spite of the employment of the much-vaunted pyoctanin, ulcers of the cornea do not appear to recover much more rapidly than in former times. **M. Wecker**, reflecting that the conjunctival sac contains many microbic germs, and that the collyria, even in well-appointed houses, contain many such germs, has lately preferred to apply a treatment of occlusion for abscesses and ulcers of the cornea, after the instillation of eserine or of pilocarpine, and of a few drops of the following solution: glycerine, 80 parts; distilled water, 20 parts;

boric acid, 4 parts ; and eserine salicylate, 0·50 part ; which he is accustomed to use as a dressing after cataract operations. This method of treatment is not applicable in cases where there is recent discharge, as in those of purulent ophthalmia of infants. But the important point is not merely to wash out, or instil a germicide into, the eye several times daily, but to prevent and remove the possibility of the growth and multiplication of the germs ; and this M. Wecker thinks he has been able to effect by inserting between the lids a shell with a hole in its centre. The instillation of a little cocain solution will enable the shell to be introduced easily, and the cavity can then be filled by injection through the hole, and the antiseptic solution is thus kept in permanent contact with the surface of the cornea, and has time to exercise its full influence on it.

12. Treatment of ulcer of the cornea occurring in the course of the purulent ophthalmia of new-born children.

In his treatise on blindness Magnus estimates that 10·8 per cent. of all cases of blindness results from ophthalmia neonatorum. Other observers have estimated it at 30 to 60 per cent., whilst a French writer at the Blind Congress in Paris, held in 1879, considered that as many as 69·34 per cent. of blindness resulted from this disease. Cr  de's valuable suggestion, carried out in the Lying-in Hospital of Vienna, has greatly reduced the frequency of this form of ophthalmia. The cause of the blindness is in nearly all cases the implication of the cornea and the occurrence of ulcers. In a recent paper Dr. Friedrich Macrocki, of Potsdam (*Deutsch. Med. Woch.*, No. 21, 1892, May 26, p. 486), states that he, in common with other practitioners, has often noticed ulceration of the cornea increase after the instillation of atropine ; but some years ago he was consulted upon a case of a child, aged 16 weeks, who had a peripheral ulcer of the cornea, threatening perforation. Eserine was immediately employed, and its use methodically continued, with the result that not only did the ulcer heal, but that the leucoma, which was at first very dense, almost entirely disappeared. Since that period he has always employed eserine in such cases, and thinks that many eyes have been preserved that would otherwise have been lost. In severe cases he applies the mitigated nitrate of silver to the mucous membrane of the lids, and employs the aqua chlorata of the German Pharmacop  ia, diluted with three times its volume of water, which should be dropped into the eyes every two hours. Dr. Macrocki gives a series of cases in support of his statements.

13. Treatment of certain forms of corneal ulcers.

M. Warlomont (*Ann. de la Société Scientifique de Bruxelles*, t. xvi., part première) reports on the occlusive plan of treatment proposed by M. Valude for infectious ulcers of the cornea. He employs a complete dressing of iodoform, which consists in the insufflation of iodoform between the lids and to the surface of the eye, and the application of iodoformed gauze upon the closed lids. This treatment is borne without discomfort, and is continued for two, three, or four days. M. Warlomont employed this occlusive and antiseptic method of treatment not only in cases of severe ulceration of the cornea, but in cases of scrofulous keratitis and in the superficial ulcerations of granular pannus. He considers that it can always be adopted, except in those cases where there is lacrymal catarrh.

14. One of the principal objections to the performance of **extraction of the lens in cataract without iridectomy**, made by those who do not approve of this method of operating, is that prolapse of the iris is apt to occur. Dr. Knapp, at a meeting of the American Ophthalmological Society held at Washington at the close of 1891, read a paper on this subject, in which he stated that during the last six years he had done 564 extractions—55 with iridectomy, 509 without. Of the latter, forty-two had various degrees of prolapse of the iris. The larger number of prolapses were of small extent, and either disappeared or remained small, and were harmless. The procedure he recommends to prevent prolapse is to cocaine thoroughly, excepting in old, emaciated people, keeping the eye closed during cocaineisation; to make the classical incision, beginning near the horizontal meridian, continuing in the same plane near, but never encroaching upon, the limbus; to open the capsule by one long horizontal incision in the upper part beneath the iris; to cleanse the pupil and anterior chamber carefully; to avoid prolapse of the vitreous and any rupture of the zonula-capsular septum; to carefully reduce the iris; to keep the patient during the first day or two as quiet as general health and reasonable comfort will permit; to watch the patient, or to tie his hands during sleep, for the first week. At the same time, while adopting this method of operating very constantly, Dr. Knapp has no hesitation in conjoining iridectomy to it when any accident rendering prolapse of the iris unusually likely occurs.

At the same meeting Dr. Webster, of New York, communicated his experience of the simple operation, showing, as he believed, its vast superiority over extraction with iridectomy. In a discussion that followed the reading of these papers, Dr. Gruening expressed

his opinion that the iris does not prolapse in the modern operation as it did in the former years of flap-extraction, because of the reduction of tension by cocain; though it would appear more probable that it is owing to the difference in the form and position of the section.

Dr. Charles Bull employs, as we have long practised, the instillation of a drop of eserine after the edges of the wound have been carefully coapted. The question of syringing out the critical substance after extraction was also discussed at the same meeting. Dr. J. Lippincott, of Pittsburg, has resorted to this method in 100 cases, but in all a small preliminary iridectomy had been made. The results seem to have been very good.

15. Transplantation of the cornea.

The Von Graefe prize (founded by Robert Wetz) for the best essay that has appeared in *Graefes Archiv*, during the past three years, has been awarded to Von Hippel for his essay on "Transplantation of the Cornea." The chief points in his essay are, that it is useless to attempt any operation of this kind in cases where there is no anterior chamber, such eyes being certain to become disorganised from glaucoma; and, in the second place, it is useless to remove large portions of the diseased cornea. Small portions should alone be excised, and care should be taken to preserve the membrane of Descemet and the endothelium.

16. The removal of cataract by suction has been repeatedly advocated, essentially on the ground of shortening the time required for the operation of needling and solution, but this operation is only occasionally practised. It is inapplicable when the patient has passed the age of twenty or twenty-five, on account of the swelling of the fragments if the lens has been at all freely divided; whilst even in young subjects the aperture of the suction-tube which is introduced into the eye is apt to become clogged with the lens substance, and if undue aspiration is used, a sudden rupture of the posterior capsule may take place, leading to troubles with and in the vitreous. The cylinder-instrument of Bowman with piston moved by the finger, gave way to a simpler one consisting only of a short glass-tube carefully rounded at the extremity, to which a piece of indiarubber tubing could be attached, enabling the suction to be effected by the mouth, where it can be better regulated than by the finger. In either of these instruments, however, it is requisite to puncture the cornea with a broad needle or with a small keratome to permit the introduction of the suction-tube.

M. Audibert (*Annales d'Oculistique*, August, 1892) has suggested a modification which has the advantage of enabling suction to be

accomplished with the introduction of a single instrument only. This consists of a cannula, slightly curved, and terminating in a lance-shaped needle 3 mm. in breadth, with sharp edges. The anterior surface of the needle is deeply grooved, the groove becoming continuous above with the cavity of the cannula. M. Audibert claims to have had great success with this instrument.

17. The advisability of **ripening immature cataracts by surgical proceedings** has again been brought forward by Dr. Boerne Bettman, of Chicago (*Medical Record*, July 30, 1892). He proposes a method which he states he has frequently adopted, with satisfactory results. It consists in performing an iridectomy, then rotating the eye downwards with fixation forceps so as to facilitate the entrance of the spatula into the anterior chamber and to permit its free movements in all directions. The blunt surface of the spatula is placed in contact with the lens, and gentle but firm to-and-fro motions are made over its surface. The extremity is thrust under the iris on both sides of the pupil and below it, the massage being thus continued over the larger part of the lens. Half-a-dozen or ten strokes will suffice. The spatula is carefully removed, the eye sprayed with a sublimate wash and with a boric acid lotion. Two drops of atropine are instilled and the eye is bandaged. Care should be taken not to exert too much pressure on the lens for fear of producing a dislocation, and the capsule should not be lacerated. Ordinarily no immediate effects are seen, but gradually the cataract becomes mature. Very little reaction follows the proceeding. The operation of extraction may be proceeded with, and is required about a month after the first operation.

18. The operative treatment of detachment of the retina by Schoeler's method is the subject of an essay by Dr. Charles S. Bull, of New York (*Transactions of the American Ophthalmological Society*, 1891, p. 30). In order that a detachment of the retina may be cured, Schoeler lays down the following propositions:—

1. It is necessary to produce such an adhesive retinitis as will antagonise the effects of a contracting or shrinking vitreous.

2. This irritative inflammation must be of moderate intensity, in order that the functions of the retina may not be injured.

3. If by this inflammation an absorption of the fluid between retina and choroid is presented, it is desirable that the means (fluid) employed to develop it, should be to a certain extent hygroscopic in character.

4. The means (fluid) employed should not injure the already

diseased and degenerated vitreous, but should rather tend to act favourably also on the original choroidal disease.

5. The fluid employed must be antiseptic, and must be injected into the vitreous, in front of the space between the latter and the retina, where it should tend to tear the shrinking or contracting bands in the vitreous without causing any further detachment. In recent cases, by its hygroscopic properties, it should act on the fluid between the retina and the choroid, through the laceration of the retina itself.

In the course of his investigations Schoeler made experiments on animals with tincture of iodine, biniodide of mercury, Lugol's solution, solutions of sublimate, and glycerole of iodine. Amongst these, iodine tincture fulfilled the requisite conditions. After an injection of six drops changes appeared during the following six or eight days, such as chorio-retinitis with diffuse cloudiness of the pre-retinal layer of the vitreous, which soon subsided. Good results from this method of treatment have been reported by Abadie and Panas. The cases operated on by Dr. Bull were none of them satisfactory, and it seems to be more than doubtful whether any real and persistent recovery of vision occurs in the detached portion of retina from any kind of treatment.

19. The performance of **scleral puncture in cases of detachment of the retina** has been advocated by Dr. T. Y. Sutphen, of Newark, N.J. (*Medical Record*, Aug. 13, 1892, p. 200); who has had two cases under his care. In one the puncture was successful in restoring useful vision; in the other slight improvement was observed. In both cases the operation was performed under cocain and with the use of antiseptics. The puncture was made with a narrow Graefe's knife near the equator of the globe, between the insertion of the external and inferior recti muscles. With the globe rotated strongly upwards and inwards the puncture was made directly through the conjunctiva and sclerotic, while the return of the globe to its normal position really converted the scleral aperture into a subconjunctival opening.

20. The appearances presented by the disc in **hypermetropic eyes** have been made the subject of careful study by Dr. Herbert Bristowe. The most conspicuous feature is described as a pseudo-neuritis, the optic disc being hazy, the haziness varying from a slight amount on the nasal side to a general blurring with some swelling at the edges, over which the vessels take a tortuous course. In other instances the retina presents a bright mother-of-pearl or watered-silk appearance, for which in very marked cases he proposes the name concentric retinal striation.

21. The subject of **asthenopia**, or eye-strain, has been fully

discussed in a volume written by **Ernest Clarke**, of the Central London Ophthalmic Hospital. He defines it, with Mackenzie, as that state of vision in which the eyes are unable to sustain any continued exercise upon near objects, although the patient, on first viewing such objects, generally sees them distinctly, and can employ his eyes for any length of time in viewing distant objects, whilst the eyes appear to be sound. Mr. Clarke points out that eye-strain arises from strain of three distinct parts of the eye apparatus—viz., ciliary strain, commonly called accommodative asthenopia, due to strain of the ciliary muscle; muscular asthenopia, due to strain of the extrinsic muscles of the eye—strain of the internal recti, or convergence strain, being the commonest form; and retinal asthenopia, due to strain of the retina and its connections. The general symptoms are inability to work persistently on near objects; pain, or rather a feeling of tension or fatigue, in the eyes; supra-orbital neuralgia, which is often periodic; vertigo and sickness; and insomnia. He refers the causes of eye-strain to continuous close work, faulty illumination, general debility or neurasthenia, anæmia, constipation, and congenital defect of the ciliary muscle, but especially to hyperopia. In the treatment it is imperative that the state of the refraction of the patient's eyes should be carefully ascertained by examination, and, if required, that appropriate glasses should be prescribed. In children attention should be paid to the illumination, to the height of the desk and of the bench at which they work, and to the type of the books they are expected to use. Muscular insufficiency should be corrected by appropriate prisms.

22. Nystagmus as occurring in miners has had careful investigation by **Mr. Snell** ("Miners' Nystagmus." Bristol: John Wright, 1892); by **Dr. J. Court**, of Staveley; and by **M. H. Romiée**, of Liège. The conclusions arrived at by these independent observers are not in accordance, but at the same time are not mutually destructive. Mr. Snell points out that mere residence for many hours daily underground and in comparative darkness is not necessarily associated with nystagmus, but that, as other investigators have shown, the disease is almost completely confined to those who hew the coal, and not to the ordinary labourers and haulers. Now, these men are engaged in "holing," which consists in the undercutting of a seam of coal preparatory to getting it down, and in accomplishing this the miner takes up a very constrained position, entering the hole he has made, lying on his side, and looking obliquely upwards. Mr. Snell refers the oscillation of the globe to the exhaustion of the muscles required to enable the miner to look in the right direction. The view taken by Dr. Court is that

the affection, though undoubtedly occurring most frequently in the class of men referred to by Mr. Snell, is due to exhaustion of the retina, owing to the imperfect light in which they work, the eyes oscillating from one side to the other to enable alternate sides of the yellow spot to fix the point at which the miner looks. The advantage that a good light, such as the electric, would afford to the miner is obvious.

23. An interesting case recorded by M. Gayet (*Archiv. d'Ophthalmologie*, April, 1892) shows that it is possible to remove considerable **deformity of the face** by a plastic operation in which the bone itself is transposed. The patient had received a severe injury with a piece of wood a few months before presenting himself for treatment, the result of which was eversion of the lower lid, with dislocation of the lower edge of the fractured orbit. It appeared to M. Gayet that it was feasible to make a free incision through the skin of the cheek and to dissect up a flap as far as the orbital border. The periosteum was then separated from the bone, and the bone itself was perforated by a series of holes with a drill parallel to the border of the orbit. The detached portion of bone was then raised nearly half an inch, and retained in position by rivets of platinum wire. The periosteum and skin were replaced, and great improvement resulted.

24. Hypodermic injections of mercury, introduced into the **treatment of syphilis** by Lewin and Bergh, have been advantageously employed for several years. They have been made with the sublimate, the albuminate, peptonate, and the cyanate dissolved in water, also with the binoxide and calomel incorporated with oil or vaseline. According to whether soluble salts or insoluble compounds are used, the number of injections has varied from twenty to thirty for the former, and four to six for the latter; and on condition that 4 or 5 milligrammes are absorbed on each occasion the good effects are real and prompt. M. Panas, in a paper (*Archiv. d'Ophthalmologie*, t. xi., No. 5, p. 262) recently published, states that he gives the preference to the soluble compounds, and amongst these especially to the biniodide of mercury dissolved in sterilised olive oil. The solution is made by dissolving at 60° C. 0.15 milligramme of the biniodide in 30 cubic centimètres of oil. Each injection, effected by a Pravaz syringe, should contain from 4 to 5 milligrammes of the salt, and the injections should be repeated every day or every other day, according to the susceptibility of the patient. These injections produce neither pain nor induration if they are made deeply into the muscular masses of the back or thighs. None of his patients suffered from stomatitis. Four or five injections were

sufficient to make gummata on the iris and exsudative iritis disappear.

25. The treatment of infectious wounds of the eye has been discussed by Dr. Dianoux (*Annales d'Oculistique*, Aug., 1892, p. 90). He points out that there are two kinds of cases—one in which the wound is recent, the other in which the wound is already suppurating. In the former case, whatever may be the nature of the lesion, the eye should be subjected to the most careful process of cleansing. The fluid should be aseptic, and should not be irritating. He is not an entire believer in anti-septics, thinking their action is too ephemeral to prove fatal to all the microbes. If strong enough for this purpose, they are irritants; if not strong enough, they act only by their fluid mass, and are not superior to boiled water. Before applying the compressive bandage, he powders the surface of the lesion freely with iodoform or with bismuth oxide, which he is disposed to prefer because it adheres more strongly to the tissues. If suppuration commences, he acts promptly and energetically, and considers the actual cautery to be the only agent which is always and really effective. He applies it by means of the thermo-cautery, the part to be touched being indicated by the previous instillation of a drop of concentrated solution of methyl blue, the germicide properties of which are not to be despised. Eserine should then be instilled, and a pad and bandage applied. If the wound be actually suppurating, hypopyon and iritis are usually also present. In such case he treats the wound as before, then proceeds to wash out the anterior chambers, and, if requisite, cauterises the deeper parts. The fluid used for washing out the anterior chamber is a solution of common salt or pure water. The iris can then be inspected. If it appear yellowish and infiltrated with pus, he performs an iridectomy, tears away a fragment of the capsule, and after removal of the lens, irrigates the empty capsule. If the vitreous appear purulent, he proceeds on the same lines, and declares he has completely evacuated the contents of the globe and irrigated the cavity, with a result that was satisfactory for at least some months. Proceeding in this fashion, the question is soon disposed of whether recovery will take place or whether pan-ophthalmitis will follow. He records various cases in which good results have followed these somewhat risky proceedings.

26. The influence of consanguineous marriages on the development of certain forms of ophthalmic disease, notably, **cataract** and **retino-choroiditis** has been the subject of many essays, the most recent being one by M. A. Trousseau (*Annales d'Oculistique*, t. cvii., p. 5). In this he quotes the observations

of George Darwin, showing that these marriages have no special influence in producing deaf mutes; those of Voisin on the isolated maritime populations of Pauillac, Granville, and especially of Batz; those of Huth, and those of Lancry—all of which demonstrate unequivocally the innocuousness of such marriages.

The observations of Dr. Lancry were of special importance. They were made at Fort Mardick. In this district out of 260 marriages, sixty-three were consanguineous, or in the proportion of 1 : 4.1—that is, more than 24 per cent. of consanguineous marriages. Yet the official statistics for France generally show that there are in that country scarcely 2 per cent. of such marriages. Out of these sixty-three consanguineous marriages Dr. Lancry was only able to find one doubtful case of idiocy, and makes no mention of the occurrence of any case of ocular trouble. Fieuzal, reporting on the Quinze Vingt Hospital, could only trace the concurrence of consanguinity with congenital cataract in fifteen out of eighty-nine cases; whilst, in regard to retinitis pigmentosa, out of twenty-one cases there were only eight in which consanguinity existed in the parents. M. Trousseau points out that it is important in making inquiries of this nature to avoid confusing consanguinity with heredity. In his inquiries he found that in twenty cases of congenital cataract there were eleven in which neither heredity nor consanguinity played a part in its production, five in which the influence of heredity was manifest, and three in which consanguinity seemed at first to be dominant, but which further investigation led him to refer to heredity. He had the opportunity of inquiring into the antecedents of eleven cases of pigmentary retinitis, and of these, in four cases he was unable to assign any cause, in five instances heredity was undoubtedly a predisposing cause, and in two cases the patients were the issue of consanguineous marriages, but heredity was distinctly present. In the case of albinos, he found that in three cases the ætiology of one was obscure, one was hereditary, and one was apparently the result of a consanguineous marriage, but heredity was also a factor. His conclusion is that consanguinity *per se*, and without the intervention of heredity, is powerless to induce ocular lesions. It cannot create any morbid condition without the materials supplied by heredity.

27. Several papers have appeared in the *New York Medical Journal* (see W. S. Lambert, Aug. 27, 1892, and A. E. Davis, Sept. 10, 1892) dealing with **errors of refraction**. Lambert approves of Javal's ophthalmometer—which, indeed, is a very useful instrument for determining the existence of astigmatism and for giving an approximation to the amount, though it gives no information

as to whether the patient is suffering from hyperopia or from myopia. But he particularly dwells upon the advantage to be derived from retinoscopy, or the shadow test, which he considers to give better results than any other method, as with practice it is possible easily to detect a difference of 0.25 D in refraction between two meridians of the eye, which is very difficult to do with any other test. Davis recommends the use of Javal's ophthalmometer, and maintains that this instrument affords a surer means of obtaining the correct axis of astigmatism, and the axis of the glass that will be accepted by the patient, than suspending the accommodation by the use of atropine, and obtaining the axis by that means.

DISEASES OF THE EAR.

BY GEORGE P. FIELD, M.R.C.S.,

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1. A tragus retractor.

Baber (*Archiv. Otology*, Jan. 27, 1892) describes an instrument designed to take the place of a speculum in certain operations on the meatus. It consists of a ring of flat metal, and the end of the band which forms the ring is bent back obliquely and forms a blunt hook 12 mm. in length. The ring is fixed on the left forefinger in examining the right ear, for instance, the auricle is drawn upwards and backwards with the middle finger and thumb, and the tragus is drawn forwards by means of the hook of the retractor.

2. Stricture of the external meatus.

Hammond (*Univ. Med. Mag.*, Phil., Sept., 1891) reports two cases of stricture after otorrhœa successfully treated by four deep incisions and peroxide of hydrogen as a lotion.

3. Traumatic stricture of meatus.

Foster (*New York Med. Journal*, July, 1891) divided the occluding membrane with the knife, and dilated the opening with Weber's lachrymal probe. The hole was kept patent by keeping in a drainage-tube, the size of which was gradually increased.

4. Electricity in chronic catarrh of the middle ear.

Baxter records considerable success in the "proliferous variety" of otitis. The meatus is filled with warm water, the aural electrode, a small wire insulated to within 2 mm. of its point, is introduced into the auditory canal and retained there by the fingers of one hand, leaving the other free to manipulate the switch, rheostat, and pole-charger; the other electrode, covered with a sponge, is held in the hand by the patient. The current is then switched on and gradually increased, watching the milliamperemeter, until from 5 to 10 milliampères of current are passing through the parts; then, retaining the electrodes in position, the poles are changed two or three times a minute. From three to six minutes is long enough for the application. If no improvement takes place after three applications the treatment is discontinued.

5. Lucae's pressure probe.

Walb (*Monats. für Ohrenheilkunde*, Nov., 1891, and *Journ. Laryngology*, etc., March, 1892) has used this instrument, and has found severe tinnitus disappear in a few instances; in others it was diminished, and the hearing power improved. Treatment, to be effectual, requires to be carried out *daily for many months*, and pressure is made fifty or sixty times at each sitting. The probe was useful not only in cases with good bone-conduction, but also where this was markedly impaired.

Stimmel and Wehmer also report a few good results out of many cases in which the method was tried.

[These contributions would have been more valuable had they contained statistics.]

6. Removal of lead by means of metallic mercury.

Sheild (*Lancet*, April 30, 1892) reports a most remarkable case of a man who was carrying a pot of melted lead down the ladder of a ship, when the vessel lurched, upsetting the lead, some of which ran into the right meatus. Six weeks later, when the burns on the side of the face had healed, he came under the care of Mr. Sheild, who found offensive discharge and total deafness, the tympanum being filled with a mass of lead, which did not, however, encroach on the meatus. Probing showed that the mass was firmly impacted, and powerful traction by means of a suitably-shaped hook failed to move it. As it was supposed that the mass might be lessened in size by solvents, Mr. Sheild, by way of experiment, placed pieces of sheet lead in mercury for twelve hours, and found that they became soft, brittle, and reduced in bulk, whilst the supernatant liquid was dark and lead-stained. On the strength of this encouraging result the patient's right meatus was thoroughly cleaned, and he was directed to lie on his left side, and the right meatus filled with liquid mercury. The mercury remained in contact with the lead altogether for sixteen hours. The patient declared he felt the liquid run down the Eustachian tube into the throat. On syringing the next day, the mass of lead readily came away; it was coated with mercury, and of the shape of the tympanum. It was said to be reduced in bulk, and prominences (previously seen with the speculum) on that part which presented at the inner end of the meatus had disappeared. The mercury would appear to have acted as a solvent, reducing the bulk of the lead, and allowing a powerful stream of water to get behind the mass and eject it.

Ryan and Barrett, commenting on this case (*Lancet*, Oct. 15, 1892), remark:—"Unless we had seen this very interesting case it

would not be possible to do full justice to it in criticism. We will merely remark that in reading the report we are inclined to emphasise the following points—(1) that the ear was suppurating ; (2) that the swelling caused by the primary burns had apparently subsided but recently ; (3) that no attempt to remove the lead by syringing had been made prior to the use of the mercury ; (4) it is not obvious that the metal in the ear was pure lead ; and (5) Mr. Sheild's statement that the mercury reduced the bulk of the metal in the ear is obviously an inference, not necessarily a fact. One of the writers of this paper (Mr. J. P. Ryan) had recently under his care at the Victorian Eye and Ear Hospital a boy, aged six years, who had forced a small leaden bullet into his ear. After the primary swelling and discharge had subsided attempts to remove the shot were made by a number of methods. The shot could be felt and seen on the floor of the meatus close to the membrane. The hearing remained fairly good. All mechanical means to effect removal having failed, resort was made to the method of solution (?) by mercury adopted by Mr. Sheild. Before introducing the mercury into the ear, however, some experiments were made with a view of investigating the solubility of lead in mercury. A few pieces of sheet lead, varying in weight from 6 grains to 45 grains, were placed in mercury for a period of sixteen hours, as mentioned by Mr. Sheild. They lost in that time next to nothing in weight or volume. If the surfaces are clean at the end of that period an amalgam of mercury is formed on them, and unless that is rubbed off the weight is slightly increased. If the lead is kept in mercury for from three to four days the effect is not much more pronounced. For periods of from three to four days, at all events, sheet lead is practically insoluble in mercury, and consequently a considerable solution by mercury of lead impacted in the ear is impossible. The lead shot, for the removal of which the use of mercury is suggested, is even more difficult to deal with, inasmuch as the coating of the shot is resistant to the action of the mercury and no amalgam forms. Even if this coating is removed it makes little difference—the mercury produces no practical diminution in volume. In passing it may be mentioned that we endeavoured to effect the removal of the shot by taking advantage of its low specific gravity relative to that of mercury. The attempt to thus float the shot out resulted, as anticipated, in failure. It is obvious from these facts that in Mr. Sheild's case one of two explanations is possible : (1) Either the mercury had nothing whatever to do with the removal of the lead, or (2) the metal in the ear was not lead. On this latter point we have obtained some information which throws a new light on the subject.

There are three kinds of solder used by plumbers : (1) Plumber's solder, which is composed of a mixture of two parts lead and one part tin ; (2) tinman's solder, one part lead and one part tin ; and (3) pewterer's solder, one part lead and two parts tin. The plumber from whom this information was obtained is of opinion that the patient referred to in Mr. Sheild's article was using plumber's solder. If so, the matter explains itself. We have obtained plumber's solder and tinman's solder, and have made experiments with them. They are both affected by mercury more readily than lead alone. In one hour some reduction in bulk is effected. They tend to become friable under its influence.

"It will therefore be of interest if Mr. Sheild will re-examine the case and ascertain definitely the nature of the metal extracted from the patient's ear, and the nature of the sheet lead he used for his experiments. At present we are endeavouring to ascertain the possibility of dissolving the shot in the boy's ear by the method of electrolysis. In conclusion, we desire to express our hearty thanks to Professor Masson, of the Melbourne University, and to Dr. Webster for valuable assistance and suggestions.

"We trust that Mr. Sheild will accept this criticism simply as an effort to obtain accuracy. The erroneous statements which, we believe, he has made, and for which there is probably a simple explanation, in no way affect the ingenuity of the treatment he adopted. The suggestion may end in a valuable addition to the knowledge required in the management of these difficult and fortunately rare cases.

"Result of some Control Experiments made for us by Dr. Webster.

Substance.	Weight before Immersion.	Weight after Immersion.	Loss.	Time.
Plumber's solder ...	22 gr. ...	10 gr. ...	12 gr. ...	16 hours.
Tinman's solder ...	22 „ ...	17 „ ...	5 „ ...	16 „
Lead piping ...	17 „ ...	15 „ ...	2 „ ...	16 „
Sheet lead ...	11 „ ...	9½ „ ...	1½ „ ...	16 „

Thus in the same time plumber's solder lost much more than the weight lost by the sheet lead. In each case the mercury adhering to the surface was removed by rubbing before weighing. The small decrease in weight of the tinman's solder is probably accounted for by the piece being thick and of irregular surface, its thickness preventing the mercury acting freely, and the irregular surface retaining some of the mercury when the piece was weighed. The action of the mercury penetrates deeper into the solder than into the pure metal, and a thin piece of the former becomes in a short time brittle and friable, contrasting with the

pliability and malleability which the latter retains. When exposed to the air the solder at once acquires a silver powdery surface, while the lead retains the metallic appearance of the mercury."

[It is to be hoped that further experiments will be made in order to elucidate this important question.]

7. Intra-tympanic injections through the Eustachian catheter.

Delstanche (*Réunion des Otol. et Laryng. Belge*, 1891) recommends liquid vaseline (? paroleine) injected into the tympanum through the Eustachian tube. The air-douche should afterwards be applied. The injection may be frequently repeated without harm.

[The rationale of an injection of liquid vaseline is not apparent in moist catarrh; it might be worth trying in the dry variety.]

8. The treatment of obstinate and fœtid suppurative otitis media.

Gradle (*Archives of Otology*, April, 1892) advocates in these cases the washing out of the tympanum by means of Hartmann's intra-tympanic syringe. He uses instillations of a 5 per cent. solution of concentrated hydrochloric acid for a quarter of an hour on several consecutive days. If this is unsuccessful an alcoholic ethereal solution of iodoform is recommended. This being a painful process, cocain first is necessary. Antiseptic glycerine poured in the meatus and retained there by cotton wool is a useful adjunct to treatment.

Gradle considers non-fœtid otorrhœa often very intractable.

9. Treatment of aural polypi.

Sheild (*Lancet*, May, 1892) insists on the necessity of careful and prolonged treatment after the removal of polypi. He points out the alarming inflammatory extensions which occasionally follow, in the direction of the mastoid cells, lateral sinus, and cranial cavity, if septic suppuration is allowed to occur. He urges, therefore, the extreme importance of antiseptic precautions before and after operations and manipulations. Boracic acid in alcohol is specially recommended. The curette employed through the meatus should be used with caution in the tympanum—opening the cavity through the mastoid is a safer procedure.

10. Artificial membrana tympani.

Cleary (*Denver Med. Times*, Aug., 1891) obtained excellent results from the well-known, but seldom used, egg-skin method. The pieces of membrane are removed about every month. Healing is promoted, hearing increased, and there is no irritation.

Spaulding (*Marseille Médical*) recommends liquid vaseline for

moistening artificial membranes, in preference to water or glycerine.

11. Excision of the two larger ossicles in chronic non-suppurative catarrh.

Dench (*Archives of Otology*, No. 2, April, 1892), writing on the treatment of non-suppurative catarrh, says that in his experience Delstanche's masseur or pneumatic tractor and kindred instruments have proved as beneficial as inflation by the Eustachian tube. After the ordinary non-operative methods have failed, he recommends resort to surgical procedure. A preliminary myringotomy with or without tenotomy of the tensor tympani is worth trying, but the most promising operation is that of excision of the two larger ossicles. Some aurists recommend thorough removal of the whole of the membrane at the same time with the ossicles. Dench, however, points out that there is, in his opinion, an obvious advantage in making only an incision sufficient to remove the larger ossicles in order that the membrane may be left to contract an adhesion with the head of the stapes, so that sound may be directly conducted from the membrane to the stapes and labyrinth.

Dench corroborates the observation of Cholewa and others, that surgical interference upon one ear often benefits the ear of the opposite side, and he draws the conclusion that with both ears affected, operative procedure should be directed to the poorer ear, for the purpose of benefiting it *and* the other ear, and for preventing the progress of the affection in the better ear.

With reference to surgical interference, he remarks that he can truly say that in no case has he ever seen a bad result follow these operations, either immediately or subsequently; and in nearly all there has been a certain amount of improvement either in diminishing the tinnitus or improving the hearing.

[I have lately seen a case from the South of England, in which the hearing was totally destroyed in both ears after this operation.]

12. Excision of ossicles in chronic catarrh of the middle ear.

Wurde mann (*Proceedings of American Medical Association*, June, 1892) speaks of his *usually* favourable experience of the operation of Sexton and Burnett, but records a case in which total deafness followed excision of the malleus for tympanic catarrh. It is stated that no injury, such as dislocation of the foot-plate of the stapes and escape of labyrinthine fluid, was done; and Wurde mann believes that the resulting total deafness on the side

operated on was due to hæmorrhage into the labyrinth, occurring during the progress of the anæsthetic (ether).

13. Excision of ossicles (malleus and incus) in middle ear disease.

Burnett (*Proceedings of American Medical Association Section of Laryngology and Otology*, June, 1892. *Journal of Laryngol., Rhinol., and Otol.*, No. 10, 1892).

The following is a synopsis of the article :—

Indications—

(1) Deafness, tinnitus, and vertigo occurring in otitis media catarrhalis chronica.

(2) Suppuration, deafness, tinnitus, vertigo, and other sequelæ of otitis media purulenta chronica.

Rationale—

(1) Permanent perforations may improve the hearing. Removal of the malleus and incus unloads the stapes and relieves tinnitus and vertigo.

(2) In otitis media purulenta chronica excision of necrotic tissue improves drainage, facilitates treatment of diseased tympanic cavity and stops suppuration, and prevents its serious sequelæ when unchecked. The removal of mechanical obstructions and checking of suppuration unloads the stapes, improves the hearing, and stops the tinnitus and vertigo.

Dr. Burnett next considered the organisation and technique of the operation. He performs it with the patient under ether, and he employs electric light, using for this purpose a six-volt three-candle-power incandescent lamp, held on the forehead by a head band, and near by a portable six-volt storage battery. (Weight 11 lbs. 6oz.)

Conclusions—

In otitis catarrhalis chronica.

(1) This operation is attended with no bad results even when it does no good.

(2) The most constant result of the operation is a relief of a sense of fulness or pressure in the ear.

(3) The next most constant result is the prompt and the permanent removal of tinnitus aurium and aural vertigo (so-called Ménière's disease).

(4) The least frequent result is improvement in hearing—sometimes, however, this is marked and permanent.

In otitis media purulenta chronica.

(1) This operation has not failed to stop suppuration in all the cases of chronic purulent otitis media in which the writer has applied it.

(2) In "attic" cases, with normal atrium, the sole perforation being in the membrana flaccida, this operation is the only means of cure.

(3) By this operation, in cases of chronic purulent otitis media, in which the sole perforation is in the membrana tensa, and is comparatively small, and while the purulency is limited to the anterior part of the drum-cavity, the suppuration is checked before it attacks the posterior portion of the drum-cavity, and mastoid inflammation and necrosis, sinus thrombosis, and cerebral abscess are thus prevented.

(4) If any hearing exists before the operation, it invariably improves after the operation.

(5) Vertigo, headache, tinnitus, and the ordinary attacks of acute inflammations, or "gatherings," so common in chronic otorrhœa, are entirely removed by the operation of excision of the necrotic remnants of the membrana tympani, malleus, and incus.

14. Excision of ossicles in attic disease.

Turnbull and Bliss (*Ann. Univ. Med. Sciences*, 1892) write as follows:—"This procedure is still performed mainly by the few otologists who have revived its use. Their reports are decidedly favourable and yet bear the impress of unprejudiced judgment. Some of these operators refer to their work as having been of comparatively easy performance. The beginner in this line of treatment, however, must not anticipate such ease for himself. . . . It is doubtful if there is a more difficult operation in the whole range of modern surgery.

"The operation offers the only hope of betterment in a vast number of cases where the pneumatic speculum, politzerisation, catheterisation, bougies, perforation, and section of the tensor tympani have reached their limit of improvement. It is to be hoped that these operations will be given a fair trial, and that otologists will prepare themselves for the proper performance of this work."

15. Attic disease.

Schmiegelow (*Vgeskrift for Læger*, Nos. 22, 24, 1892) describes twenty cases where excision of the tympanic membrane, together with removal of the malleus, or the incus, or both, was practised. Nine cases completely recovered, and eight were improved under this treatment. The malleus was fourteen times diseased.

16. Excision of the malleus and incus.

Reinhard (*Journal of Laryngol., Rhinol., and Otol.*, Feb., 1892) reports that out of thirty cases in which this operation was performed by Schwartz's method through the meatus, he had sixteen

cures. [He attributes the want of success in the other fourteen cases to disease in the antrum and mastoid cells; and it is, therefore, rather surprising to find that he prefers Schwartz's method to Stacke's, seeing that the latter aims at inspecting and treating the antrum and cells at the same time.]

Milligan (*Lancet*, Jan. 16, 1892) reports four cases of attic disease which were benefited, as regards hearing and suppuration, by Schwartz's method of removing the malleus and incus.

17. Antrectomy or obliteration of the temporal antrum.

W. Arbuthnot Lane (*Archives of Otolology*, April, 1882), writing on this subject, demonstrates—

(1) That the antrum plays an important part in chronic purulent otitis. It steadily increases in size and forms a steadily increasing obstacle to cure by simple measures.

(2) That this cavity, its development, anatomical connections and functions, is either only just alluded to or else wrongly described in the text-books of anatomy, physiology, and aural surgery.

(3) The antrum has no anatomical or physiological relationship with the mastoid process or its cells, *it is situated in the petrous bone*, and is anatomically and physiologically a part of the middle ear.

(4) The chief function of the antrum is to secrete and store up mucus with which to lubricate and moisten the middle ear and its contents, and in a manner analogous to the purposes served by the sacculus laryngis. It measures about a quarter of an inch in length by about an eighth of an inch in depth and breadth.

(5) That a large number of mastoid bones are dense, containing only a few canaliculi, which cells are often situated at the apex. In only a small number of cases does the process contain the two groups of large spaces or cells described by anatomists. Denseness of bone and absence of cells are often normal, and not the result of chronic inflammation.

(6) In healthy subjects the normal antrum may become continuous with the mastoid cells owing to their encroaching on it in their subsequent development.

(7) When a chronic purulent otitis media has existed for some time, the antrum has increased in size, its cavity being filled with decomposing and irritating caseating secretion, which by its presence causes progressive absorption and destruction of the wall of the cavity. In this way the dura mater of either fossa, with the lateral sinus, may be exposed and form a portion of the boundary of the enlarged antral cavity.

(8) The antrum as it enlarges encroaches more or less on the mastoid bone, and may establish communication with the mastoid cells if they exist in a high degree of development; these may also become filled with caseating secretions.

(9) If the antral cavity be much enlarged, it is perfectly hopeless to attempt with safety to clear it of its foul, tenacious, thick contents by any process of irrigation or operation through the auditory meatus; and even if it were possible to do this, it would only be a question of a few days or weeks before the antrum had again become choked with decomposing secretion.

(10) While the antrum is filled with its irritating contents aërial conduction may be absent or impaired, but within a few days of operation there is a remarkable improvement in audition.

(11) The facial nerve lies in its canal immediately to the inner side of the aperture by means of which the antrum communicates with the tympanum. This must be borne in mind in operating.

(12) The chief function of the tympanic membrane is to prevent too rapid evaporation of the secretions of the middle ear and antrum, and its presence is not necessary in order to hear ordinary conversation with acuteness.

Mr. Lane says that in his now considerable experience of antrectomy for purulent otitis media, the antrum was nearly always much enlarged, and the mastoid bone rarely contained any but the most minute cancellous spaces; the bone was often so dense that it took an hour's good work to cut through the five-eighths of an inch of bone necessary to reach the antral cavity. Mr. Lane uses the chisel and gouge and a heavy mallet, and speaks of the trephine as a "clumsy and unsuitable instrument." Such an instrument is no doubt effective when the cells are well developed and obviously connected with the antrum, but it is not of these simple cases of which he writes: "By exposing the antrum in such cases, and by scraping the cavity with sharp spoons, and then by subsequent removal of overhanging bone so as to make the gouged inner wall of the antrum the apex of a cone, the base of which is rendered as broad as possible in order to remove the sides of the enlarged antral cavity, and by fixing for a considerable time a metal tube in such a position that its end rests on the obliterated inner wall of the antrum—that is, at the apex of the cone—the cavity of the antrum is permanently obliterated and the floor of the cavity becomes filled up with fibrous tissue." The middle ear is at the same time cleared of its contents [? ossicles], the remains of the membrane removed, and the aperture of communication with the antrum is enormously enlarged by the removal of its outer boundary (the whole of the

posterior boundary of the external auditory meatus having been already excised when the mastoid process was cut away). The only danger is the risk of wounding the facial nerve.

In order to retain the hearing capacity in the improved condition resulting from the operation, it is necessary to replace the assumed functions of the antrum and membrane. The former is accomplished by daily irrigation, and the latter by the use of Ward Cousins' artificial membranes.

Mr. Lane claims that the operation is one of the most satisfactory and useful in surgery, and accompanied by practically no risk.

[It will be seen that Mr. Lane puts forth some very heterodox views. It must be at once conceded, however, that the term "mastoid antrum," commonly in use, is a misnomer; the cavity is situated in the petrous portion of the petro-mastoid bone. This is not the place to discuss Mr. Lane's theories of the functions of the antrum and tympanic membrane, and several other controversial points in the paper. The acceptance of them, or not, does not affect the main facts insisted on—that a thorough opening up of the antrum, cells, and tympanum, and the removal of their morbid contents, is the only means of curing the chronic suppurations in the class of cases alluded to.]

18. Cholesteatoma.

Bezold (*Archives of Otology*, Oct., 1891) recommends thorough surgical procedure, removal of granulations, curetting, and scooping softened bone by the meatus, and, if necessary, opening of the antrum and mastoid cells.

19. Stacke's operation for exposure of the cavities of the middle ear after separation of the auricle.

Stacke (*Monats. für Ohrenheilkunde*, Nov., 1891) first brought his operation forward at the International Medical Congress at Berlin in 1890, and it was briefly referred to in the "Year-Book" for 1891 (p. 430). He now makes a further communication on the subject. The operation is useful in most cases of obstinate suppurative catarrh of the middle ear, but is especially indicated in carious and cholesteatomatous disease in the attic. He asserts that the temporal antrum is *as a rule* simultaneously affected—it was so in thirty out of thirty-three cases operated on. The auricle is displaced forwards, and the operation is practically identical with that so long and ably advocated by Arbuthnot Lane—the posterior wall of the meatus is removed, and the mastoid bone chiselled until the antrum is reached; the malleus and incus and the remains of the membrane are removed, and bone is chiselled away so that the attic, lower part of the tympanum, and antrum

form one cavity. An essential point in Stacke's operation is to preserve a flap of skin and periosteum from the meatus, so as to cover the osseous cavity made by operation and to construct a lasting skin-covered opening between the antrum and the meatus. The average duration of the after-treatment and healing process is four months. Stacke's results are as follow:—Out of thirty-three cases, in nineteen the discharges ceased and were practically cured, two were discharged for other treatment, two disappeared, nine remained still under treatment, and one died of diabetes mellitus independently of the operation. The hearing power was occasionally improved, never made worse, and generally unaltered.

[It will be seen that the primary object of the operation—namely, the cure of the suppurations—was attained in about 60 per cent. of the cases; but the increase in hearing power which has been so extravagantly claimed for this and similar operations by many Continental and American specialists, is not borne out by Stacke's statistics. Schwartz, Loewe, and Kretschmann have borne witness to the safety of this method of operating, and in England Arbuthnot Lane has shown this to be true. Schwartz, however, utters a note of warning when he states that the operation is a difficult one, requires much practice on the cadaver, and good illumination and skilled assistance are absolutely necessary.]

20. Bezold's disease of the mastoid.

Several observers report cases of this form of disease in which pus makes its way into the digastric groove, and then burrows either under the muscles attached to the mastoid or down the course of the great vessels of the neck, or behind the pharynx.

Guye (*Zeitschrift für Ohrenheilkunde*, April, 1892) has recorded several cases. In one there was extensive swelling under the mastoid process; and, when pressed, pus welled up through a fistula in the posterior wall of the bony meatus. A counter opening was made at the anterior border of the sterno-mastoid, and a drainage-tube was inserted: recovery took place. In another case the mastoid discharges formed a retro-pharyngeal abscess.

21. Sinus - thrombosis following purulent otitis media treated by ligature of the internal jugular vein and washing out of the sinus. Plugging with antiseptic wax.

Cases illustrating this, the only successful mode of treatment for pyæmia associated with sinus-thrombosis, have been recorded in the "Year-Books" for 1891 and 1892. The operation was originally suggested by Horsley and first successfully put into practice by Arbuthnot Lane.

Rushton Parker (*Liverpool Med. Chi. Journal*, Jan., 1892) records the case of a boy with chronic suppurative catarrh of the middle ear, who had local pain, rigors, and vomiting. He was giddy, drowsy, and delirious; there was deafness and foetid discharge, swelling of the neck below the left ear, and *double optic neuritis*. [This served to distinguish the case absolutely from Bezold's mastoiditis.] The internal jugular was ligatured and found to be plugged near the skull. The skull was opened and the sinus exposed by means of the gouge. The sinus when opened was found to contain purulent clot and lymph; it was cleared, scraped, and irrigated, and then *plugged with antiseptic wax*. In two days the temperature rose, the wax was removed, and pus escaped. The mastoid antrum, which for some reason or other had not been explored previously at the first operation, was now opened, scraped clean of some caseating contents, and drained. The patient made a good recovery. In a second very similar case the patient, in spite of operation, died of meningitis.

22. Guides for trephining the skull.

Macnaughton Jones describes in the *Lancet* (March 5, 1892) a rule and scale for use in trephining the skull in case of aural disease.

This is a 4-inch rule marked in fractions of an inch, and accompanied by an ivory slip, on which are printed the measurements needed in trephining the antrum, cerebrum, or cerebellum, as published by Birmingham in the *Dublin Journal of Medical Science*, Feb., 1891. They are thus set out:—

GUIDES TO TREPHINING THE SKULL.

- L.S. = $1\frac{1}{8}$ in. behind M. \times level with upper border.
 T.S.L. = $1\frac{1}{4}$ behind M. \times 2 in. above it.
 M.A. = $\frac{1}{2}$ in. above level of and behind m.; depth $\frac{3}{8}$ in. to $\frac{3}{4}$ in.
 C. = 2 in. behind M. \times 1 in. below R.B.L.

EXPLANATION OF MARKING.

- | | | | |
|--------|---------------------------------|--------|------------------------|
| L.S. | Lateral sinus. | M. | Centre of bony meatus. |
| T.S.L. | Temporo-sphenoidal lobe. | M.A. | Mastoid antrum. |
| C. | Cerebellum. | R.B.L. | Reid's base line. |
| m. | Superior margin of bony meatus. | | |

23. Tapping an abscess in the temporo-sphenoidal lobe through the antrum.

Truckenbrod (*Monats. für Ohrenheilk.*, Oct., 1891) described a case in which unequivocal signs of cerebral abscess followed an otitis media of influenzic origin. The operation consisted in chiselling open the left antrum, and removal of the tegmen antri, which separates the antrum from the cranial cavity, incision of the

membranes which were found adherent to the brain, and exploring the temporo-sphenoidal lobe with a syringe inserted forwards, inwards, and upwards. Pus was found and the opening was enlarged by incision and drained. The case recovered.

[This was certainly a brilliant piece of surgery, and so simple—only one incision in the bone being made. On the other hand, in spite of the successful issue in this case, it seems a risky proceeding (1) to break down such an important barrier as the roof of the antrum; (2) to drain the cerebral abscess into the middle ear.]

24. Exploratory operations for intracranial lesions following aural disease.

Dean (*Lancet*, July 30, 1892) describes the method he adopted in the case of a patient with chronic middle ear suppuration, together with mastoid inflammation, who still suffered from headache and drowsiness after the mastoid cells had been opened. He applied a $\frac{3}{4}$ -inch trephine with the pin at a point $1\frac{1}{4}$ inches behind, and $\frac{1}{2}$ inch above, the centre of the auditory meatus; by this incision the lateral sinus was exposed below and the dura mater over the temporo-sphenoidal lobe above. Both the sinus and the lobe were explored from this hole without finding matter. The trephine hole was then enlarged downwards and backwards by means of Hoffman's forceps, and the dura mater of the posterior fossa below the sinus exposed. The dura was incised and the cerebellum explored with a trocar, with the result that pus was found and flowed freely. A rubber drainage-tube was inserted, and the patient made an excellent recovery—all symptoms, including optic neuritis, disappearing. Dean insists on the importance of exploring all the likely dangerous areas when once the skull is opened, and comments on the feasibility of doing this from one comparatively small hole in the cranium.

[Wheeler was the first surgeon to call attention to the desirableness of making one hole in the skull instead of two or three, as practised by Barker and others. Wheeler's plan is, however, to do this by an extension of the necessary mastoid operation, by removing bone upwards and forwards to get at the middle fossa, and backwards and downwards to expose the sinus and posterior fossa. In this form of operation it will be observed that the temporo-sphenoidal lobe and lateral ventricles are explored from a spot which is much lower than that recommended by Barker and Birmingham; for the former recommends that the cerebrum should be examined from a $\frac{1}{4}$ -inch trephine hole having its centre $1\frac{1}{4}$ inches behind, and above, the centre of the external auditory meatus. Birmingham believes that the centre of this circle should be half an inch higher.]

25. Pilocarpin injections in syphilitic labyrinthine deafness.

Böke reports a case of recent syphilitic deafness (of labyrinthine and middle ear origin) which was considerably benefited by pilocarpin injections.

26. Epilepsy with aural "aura."

Goris treated successfully a case of the above by massage of the membrane and ossicles by means of the pneumatic tractor and pressure probe.

27. The pathology and treatment of suppurative diseases of the ear.

Field, in the Harveian Lectures with the above title (*Brit. Med. Journal*, Dec. 3, 1892), draws attention to the paramount importance of the part played by micro-organisms in suppurative aural diseases, especially in reference to treatment.

"The natural causes of suppuration due to chemical irritants are parasites, the secretion of which, either directly or by inducing fermentative changes in the fluid of the living tissues they infest, attracts and causes the death of exuded leucocytes, and when absorbed into the general circulation, gives rise to toxic phenomena included by us under the term 'fever.'

"These organisms (or microphites), it must be clearly recognised, are not the sole factors in the production of the diseases which they characterise. Thus, the mere introduction into the middle ear of a pyogenic coccus from the mouth or air-passages, where it normally exists, by Valsalva's method of inflating the tympanum, will not in itself determine the commencement of otitis, for the production of which preparedness of the host is as necessary as the presence of the parasite.

"On the other hand, any influence bringing about an abnormal condition of the mucous membrane, and concurrently an exudation into the cavity of the tympanum of mucus or serum serving as an acclimatising medium or culture-fluid for the development of pyogenic organisms—whether it be congestion of the drumhead set up by ingress of water in bathing, or inflammation of reflex nervous origin (cold in the head), or a general fever, such as influenza, measles, small-pox, scarlatina, or typhoid, may be provocative of a discharge from the ear. Suppurative otitis may thus be simply a by-product in the course of many diseases, and may present no features diagnostic of its modes of origin. In the case of pyæmia, aural suppuration may give character to a general affection of the body. One mycotic organism, the *Aspergillus niger*, claims more than common attention on account of its remarkable life-history.

"This fungus may leave its wonted *habitat*, the superficial

portion of the epidermis, and, penetrating the deeper layers of the membrana tympani, may cause its perforation. Professor Délépine has lately shown (*Path. Trans.*, vol. xlii., p. 432) that this fungus is to a limited extent pathogenic in rabbits. Before the study of pathogenic microphytes had been systematised, Grawitz thought that by suitable acclimatisation he could confer toxic properties on the common *Penicillium glaucum* and other moulds. Later researches have shown that fungi cannot be so readily rendered hostile to animal life. Though acclimatisation has not the importance Grawitz claimed for it, we know that the powers of micro-organisms may be greatly modified by cultivation under different conditions. Recognising the inter-action of two ever-changing living things, the parasite and the host, we are now beginning to understand the variability of infectious diseases, the nature of immunity from the same, and other old-world problems, so that the present must necessarily appear as a bright epoch in the future history of pathology.

"The following pyogenic bacteria have been encountered in middle ear suppuration :—

"*Streptococcus pyogenes*.

"*Staphylococcus*.

"*Pneumococcus* of Fränkel.

"*Pneumobacillus* of Friedländer.

"*Tubercle bacillus*.

"It appears that *Streptococcus pyogenes*, first detected by Ogston in the pus of an abscess, is the most frequent cause of acute suppuration. It is not only the most ubiquitous, but also the most dangerous of the pyogenic organisms, being usually the active agent when suppurative otitis eventuates in meningitis, cerebral abscess, thrombosis of the lateral sinus, or general pyæmia. In one case (of Zaufal's) it was this streptococcus which determined a hæmorrhagic discharge. We thus find that the commonest and more pernicious of the suppurative diseases of the ear is brought about by the same organism which is met with as the most frequent cause of acute osteo-myelitis, ulcerative endocarditis, and puerperal fever, and which, in all probability, when confined to the corium, determines ordinary erysipelas. If it were necessary to found an argument for the adoption of strict antiseptic treatment in aural practice, evidence of the wide distribution of this deadly parasite would be alone sufficient (*Staphylococcus*). The species of its genus most commonly met with is *Staphylococcus aureus*.

"Not unfrequently it is found to have caused acute suppuration of the middle ear (Fränkel and Lussano, Dunin, Röhrer,

Netter). Though generally less dangerous, it has a wider pathogenic potential than streptococcus. It has been discovered in abscess, thrombosis, pyæmia, and endocarditis.

"Among its many other effects are acne, and sycosis-pustules, boils, carbuncles, and ordinary warts. We may hence deduce a possible reason for the frequent association of purulent otitis with adenoids of the pharynx if, like enlarged tonsils and cutaneous warts, these bodies are hyperplastic growths due to the irritation of the staphylococci. Pneumococcus, proved by Fränkel to be the immediate cause of croupous pneumonia, has been frequently found in the pus produced in acute inflammation of the middle ear; and in each of these diseases (as Zaufal and others have pointed out) its effects run a definite course. This fact has led me to attribute to pneumococcus numerous cases of otitis which occurred in my practice during the late influenza epidemic. Unfortunately, otitis due to pneumococcus is not uniformly brought to a satisfactory finish after a rapid cycle of pathological conditions, as it results occasionally in a general meningitis. Like the organisms already mentioned, pneumococcus has been met with in endocarditis. In rabbits it produces a true septicæmia. The pneumobacillus of Friedländer has been detected by Zaufal as a sole immediate cause of middle ear suppuration.

"Like Fränkel's pneumococcus, it is encapsuled when occurring in the bodies of animals, not so when artificially cultivated; but is distinguishable from pneumococcus by its more elongated form and by its refusal to stain by Gram's process. The original view of Friedländer as to the excitation of croupous pneumonia by this bacillus has been shown to be unjustified.

"Tubercle bacillus, strictly speaking, is not a pyogenic organism; but wherever a tissue attacked by tubercle is exposed to infection by pus-cocci there chronic suppuration takes place. Thus it is that a thin discharge from the ear due to tuberculosis may at any time become thick and purulent. One may take it as a rule that wherever, in spite of free drainage, there is chronic suppuration, its cause is generally tuberculosis. In the ear this begins either as an affection of the mucous membrane, or as osteo-myelitis of the mastoid.

"In severe tubercular meningitis the middle ear is always filled with muco-pus, and our pathologist at St. Mary's tells me, that since his attention was directed to the matter by Dr. Lees some years ago, he has examined the muco-pus in many cases, and continually found it to contain tubercle bacilli. In preparations of this muco-pus may be seen crowds of tubercle bacilli excluding all other organisms."

DISEASES OF THE THROAT AND NOSE.

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THERE is nothing very novel to chronicle in this special branch of medicine, the past year having been quite uneventful when compared with the one that preceded it, in which Koch's tuberculin made its appearance. Most of the literature relating to Laryngology and Rhinology presents a record of the results of the careful testing of older methods of medical and surgical treatment. This we regard as quite as valuable and necessary as if a number of new remedies had been suggested, thus necessitating careful separation of the valuable ones from those that are indifferent or even harmful.

I.—TONSILS.

1. The treatment of acute tonsillitis.

Every year a number of remedies for the above affection are suggested, and the present one is no exception to this rule.

Norbury (*Therap. Gazette*, May 16, 1892) says that $\frac{1}{8}$ to $\frac{1}{2}$ grain of sulphide of calcium frequently repeated will often prevent suppuration.

Should this, however, occur, a gargle of peroxide of hydrogen to which oil of cassia is added is a good antiseptic.

Wright (*Internat. Journal of the Med. Sciences*, August, 1891) praises salol, especially in the lacunar variety.

Ruault (*Journal of Laryngology, Rhinol., and Otol.*, March, 1892) has dealt with the important subject of "lingual phlegmonous periamygdalitis," having treated six cases. The symptoms are mainly those of faucial tonsillitis, and his treatment consists in free and deep scarification of the swollen and inflamed lingual tonsil to try to prevent suppuration. If this has already occurred, early deep incision to evacuate the abscess is required.

2. Hæmorrhage after tonsillotomy.

The very few cases that have been published in which this is

severe enough to be alarming show that it must be regarded as a very rare occurrence.

Hulke (*Brit. Med. Journal*, April 30, 1892) recommends us to use a pair of long forceps, one blade of which is padded with lint and introduced against the cut tonsil, the other is applied against the neck, and both blades are tied together. (*See also* Article on "General Surgery," p. 216.)

II.—PHARYNX.

The treatment of affections of the throat due to the evil influence of organic germs and fungi has occupied a good deal of attention. Especially is this true of

3. Pharyngo-mycosis.

Hemenway (*Journal of Laryngol., Rhinol., and Otol.*, Feb., 1892) treats it with the thermo- or galvano-cautery, and denies that the fungi can be destroyed in any other way.

The American Laryngological Association (Rep. in *Med. News*, July 2, 1892) has discussed the question.

Knight bores deeply into the follicles with the galvano-cautery point.

Delavan prescribes a wash of borax or mercuric chloride solution to be used frequently, and regulates the digestion.

Chapman applies fuming nitric acid through a grooved platinum needle, and administers nitro-muriatic acid internally.

Lincoln (*New York Med. Journal*, Oct. 31, 1891) says that methyl blue is useful in the treatment of chronic follicular sup-puration of the tonsils and soft palate associated with the growth of leptothrix. It is also of value in nasal and faucial diphtheria and ozæna.

4. Antipyrin is to some extent replacing cocain in painful throat affections.

St. Hilaire and Coupard (*Arch. de Laryngol.*, Sept., 1891) have found this drug very useful in producing anæsthesia of the throat. The strength of the solution must be 30 to 40 per cent., and if painted on tuberculous ulcers two or three times a day it will effectually keep down pain. The anæsthesia is complete for touch, heat and cold, and it lasts one to two hours. They say that cocain is to be preferred if the anæsthesia is to be rapidly induced and very complete.

Vianna (*Brit. Med. Journal, Sup.*, May 14, 1892) finds that $2\frac{1}{2}$ per cent. solutions will prevent cultures from growing the diphtheria bacillus, and accordingly recommends us to use it in that disease.

III.—LARYNX.

We hear very little of tuberculin or cantharadin nowadays, and the treatment of laryngeal tuberculosis has settled down to the carrying out of the methods that were approved previous to our having those drugs brought before our notice.

5. Resorcin in laryngeal phthisis.

Tymowski (*Lancet*, Nov. 21, 1891) reports that 2 to 3 per cent. solutions of this remedy are antipyretic, antiseptic, and hæmodynamic, when inhaled. He applies a 10 per cent. solution direct to the tuberculous ulcers if they are especially unhealthy.

6. Pachydermia laryngis.

Scheinmann (*Berlin Klin. Woch.*, No., 45, 1891) prescribes sprays of physiological solution of common salt and instillation of 3 per cent. acetic acid solution.

Meyer (*Berlin Klin. Woch.*, No. 19, 1892) reports complete cure of two cases after removal of the tumour with cutting forceps.

The use of unguarded instruments in all such operations within the larynx is more and more condemned, and Dundas Grant (*Journal of Laryngol., Rhinol., and Otol.*, Dec., 1891) describes a pair of forceps of his own design. They consist of a pair of Mackenzie forceps with cutting edges, jointed together at the extremities. The effect of this modification is that when the instrument is opened, a lozenge-shaped space is formed, into which a growth projecting from one of the vocal cords slips, and is cut off.

7. Intubation in children requiring intra-laryngeal operation.

Lichtwitz (*Journal of Laryngol., Rhinol., and Otol.*, July, 1892) introduces an intubation tube fenestrated on one side so that a laryngeal growth may penetrate the fenestra previously to attempting to remove such a growth in children.

The tube should be cylindrical and thin-walled, and the growth can be removed by forceps, snare, or porte-caustique. He also thinks that it will be of use in operations on subglottic growths in adults.

8. Removal of part of the epiglottis.

Rice (*New York Med. Journal*, April 9, 1892) describes certain symptoms due, as he believes, to the abnormal contact of an enlarged and congested epiglottis with neighbouring structures that are normally not touched by it. These are tickling, fulness in the larynx, spasmodic cough, vomiting, partial loss of voice. For their relief he has removed a portion of the offending cartilage

with a pair of long-handled scissors. Bleeding is free, but is easily checked by the application of nitrate of silver. The inflammation following the operation is not severe.

9. Inhalation of menthol in tracheitis and laryngitis.

Martin and Lubet Barbon (*Journal of Laryngol., Rhinol., and Otol.*, March, 1892) recommend the following method of inhaling menthol in laryngitis. The apparatus consists of a wide-necked flask with the usual arrangement of a cork with two tubes going through it. In this is placed the menthol, which, on the flask being heated by means of a water bath or over a spirit flame, is volatilised, and should be slowly inhaled. About ten inspirations may be taken three times a day.

Bishop (*Med. Record*, Oct. 31, 1891) praises camphor menthol solution in catarrhal diseases. In laryngitis with loss of voice, the inhalations should be of 5 to 20 per cent. strength; in hay-fever, 3 to 5 per cent. if the nose is very sensitive, or 10 per cent. if it is less sensitive and if hypertrophic rhinitis exists. In order to reduce considerable stenosis, 20 to 25 per cent. is required.

10. Spasmodic croup treated by the administration of tincture of iodine.

Watkins (*New Orleans Med. and Surg. Journal*, Feb. 1892) administered $\frac{1}{5}$ of a drop of tinct. iodi. every fifteen minutes for an hour, and then every two hours for a day, to a child of two and a half years old with much success.

11. Intubation and tracheotomy statistics.

Prescott and Goldthwait (*Boston Med. and Surg. Journal*, Dec. 31, 1891) have collected statistics of 2,815 cases of intubation and of 23,941 cases of tracheotomy, and the mortality following the operation varies very little in the two surgical procedures.

12. Influence of faulty voice production in causing disease of the throat.

This most important question which had previously been brought before the British Laryngological Association was discussed at the Nottingham meeting of the Brit. Med. Assoc. (*Rep. in Journal Laryngol., Rhinol., and Otol.*, Sept., 1892). Sandford, Lennox Browne and Hunt showed abundantly that stammering, chronic pharyngitis, loss of the singing voice, and the so-called "clergyman's sore throat" are all caused, and their permanent cure rendered practically impossible, by faulty voice production. This bears directly on the treatment of these troublesome and prevalent maladies, and the profession at large is not sufficiently alive to the importance of recommending their

patients to undergo a careful course of vocal training, without which permanent cure is often impossible.

Wyllie (*Edin. Med. Journal*, Oct., 1891), writing on the treatment of stammering, advises the patient to direct his attention to the production of laryngeal sound (as by intoning the first syllable of a sentence) rather than to the formation of speech by the mouth.

He ought to utter full and resonant, but at the same time natural, tones, practise reading aloud, and, if possible, singing. It is important to acquire the habit of filling the chest at proper intervals.

IV.—VARIA.

13. Electrolysis in the treatment of throat and nose affections.

Shields (*New York Med. Journal*, Dec. 19, 1891) has successfully treated by this method three out of four cases of fibro-cystic goître, which had previously resisted other treatment. The labile method was employed. The electrodes were applied to the skin; fifteen to thirty cells were used; the sittings lasted twenty to thirty minutes each, and the cases were under treatment from six weeks to six months.

Heryng (*Journal Laryngol., Rhinol., and Otol.*, Sept., 1892) denies that electrolysis is satisfactory in the reduction of tonsillar hypertrophy, and says that it is even of less efficacy in removing hypertrophy of the turbinated bodies and deviations and thickenings of the nasal septum.

In one case perforation of the septum followed its application. In laryngeal tuberculosis it is fairly satisfactory, but will not displace approved surgical measures.

Campbell (*Med. News*, July 9, 1892) has cured six cases of œsophageal stricture by means of electrolysis. One electrode was introduced into the gullet as far as the commencement of the stricture, and a current of five milliampères passed through it to begin with. This strength of current was gradually increased in some cases, as the patient could bear it, and the stricture in every case was overcome. Large bougies that previous to this treatment could not penetrate any part of the narrowed tube were easily passed down its whole length, and swallowing once more was readily accomplished, after having been almost impossible.

Flatau (*Brit. Med. Journal, Suppl.*, May 7, 1892) recommends electrolysis in nasal catarrh (*vide* also "Year-Book of Treatment" for 1892, pp. 444 and 445).

14. Exploratory puncture and irrigation of the antrum of Highmore.

Lichtwitz (*Journal of Laryngol., Rhinol., and Otol.*, April, 1892) read a paper on his method of performing this operation, before the Laryngological Society of Paris on Jan. 8, 1892.

The instruments to be used consist of a fine trocar and cannula and a syringe that fits on the end of the cannula. The nostril is first thoroughly cocainised, and the point of the trocar fitted with its cannula should be inserted in the middle of the inferior turbinated bone and pushed steadily outwards and upwards, in order that it may penetrate the antrum through the outer wall of the inferior meatus of the nostril. The trocar being then withdrawn, an antiseptic solution is to be syringed through the cannula, and this makes its exit through the natural orifice into the nose. If there be any reasonable amount of pus in the antrum, it is readily seen on inspecting the fluid as it issues from the nostril. Lichtwitz has carried out this procedure 111 times, with the result that on 43 occasions it revealed the presence of pus, and in 68 the fluid returned clear. The 43 punctures, which gave positive evidence of pus, were performed in 31 patients, of whom 12 suffered from double empyema.

It is said to be especially valuable in collections of pus in both antra.

Dundas Grant (*Journal of Laryngol., Rhinol., and Otol.*, Dec., 1891) has tried this method in twelve cases, and says that it has been of much assistance to him in a *diagnostic* point of view.

15. Improved methods of performing artificial respiration.

O'Dwyer (*Archives of Pediatrics*, Jan., 1892) has devised a method of performing artificial respiration by means of certain instruments, which he believes is better than that of Sylvester, inasmuch as the chest cannot be expanded to any considerable degree without contraction of the inspiratory muscles and diaphragm. His instruments consist of two long tubes—one for children and one for adults—and fine laryngeal tips, the lower portions of which are grooved to allow the vocal cords to help in holding them down. The proximal portion of the long tube has two openings; one for inspiration, connected with a pair of bellows, the other to be controlled by the thumb of the right hand. The laryngeal part of the tube tampons the larynx below the vocal cord, so that no air can escape beside it.

Ten or twelve respirations per minute are recommended in order that overdistension and rupture of air vesicles may be prevented. The great value of the method has been demonstrated by Fell in

cases of opium poisoning, and by Wood in experiments on animals anæsthetised by ether or chloroform. Even when all respiratory movements had ceased for two minutes, and the heart also had quite ceased to beat, it proved itself to be able to rescue those poisoned. In paralysis of the inspiratory muscles in strychnine poisoning, and in eclampsia and pulmonary obstruction it has been of great value. The tubes may also be of value in quite another way, *i.e.*, by preventing from blood entering the trachea and bronchi in operations about the mouth. Fell (*ibid.*, May, 1892) contests the value of the tubes, and prefers his own method in which no tubes are employed, because he thinks they may allow vomited matter to enter the larynx, and they prevent the patient from imbibing fluids.

16. A prescription for throat affection of influenza origin.

Beverley Robinson (*New York Med. Journal*, April 16, 1892) prescribes the following tablet in the sudden inflammation of the muscles of the neck, with pain, redness, and rigidity accompanied by throat trouble in influenza :—

R Caffein Cit.	...	...	...	...	...	gr. $\frac{1}{2}$.
Phenacetin	...	...	...	...	...	„ i.
Ammon. Salicyl.	...	...	...	...	...	„ iii.

One every two or three hours. Gargling with carbolised alkaline solutions is regarded as an excellent and trustworthy prophylactic.

V.—NOSE.

17. Nasal neuroses.

The treatment of nasal neuroses was thoroughly discussed at the recent meeting of the British Medical Association at Nottingham (*Journal of Laryngol., Rhinol., and Otol.*, Sept., 1892).

Donald Stewart and Bronner thus summarise :—

1. Offending tissue in the nose must be removed by saw, cutting forceps, snare, or trephine.
2. The galvano-cautery or caustic acids, such as chromic acid or trichloroacetic acid, must be applied to get parts healthy.
3. Alkaline and antiseptic washes are useful to a limited extent.
4. General tonic treatment must be adopted.

Bosworth (*New York Med. Journal*, March 26, 1892) reports eighty-eight cases of asthma in which there was coexistent nasal disease of a turgescient character, and in which surgical interference for its relief was undertaken. The result of treatment is

that forty-two are cured, *i.e.*, have had no attack for at least twelve months; thirty-three are improved, *i.e.*, the attacks are much less violent when they occur, and they come at longer intervals; two are unimproved; and in eleven instances no information can be obtained.

Baumgarten (*Monats. für Ohrenheilkunde*, Nov. 5, 1891) reports the case of a lady in whom mental excitement produced acute pain over the left eyebrow, which was much increased on touching the nose, and was accompanied by a free discharge of watery fluid from the nostrils. The faradic current, galvano-cautery applied to the turbinated bones, and inhalation of steam were of value. Drugs, including antipyrin, were useless.

Musehold (*Rev. de Laryngol.*, July 15, 1892) has cured a case of Basedow's disease by removing the posterior half of the inferior turbinated body by the galvano-cautery snare. The headache, which was present, at once disappeared, the heart-beat became nearly normal in rate after seven days, and the thyroid enlargement disappeared in two months under the influence of mild continuous currents. The writer thinks that the disease is sometimes, as in this instance, due to reflex neurosis from the nose.

Loebinger (*New York Med. Journal*, Dec. 12, 1891) recommends fifteen-drop doses of terpin hydrate in a capsule three times a day in hay asthma. He has seen no drawbacks in giving as much as 60 drops a day, even in patients suffering from kidney mischief, and the success of the drug is very great, the spasm being quickly cut short and free expectoration established.

Blair (*Brit. Med. Journal, Sup.*, May 14, 1892) recommends the internal administration of fluid extract of *euphorbia pilulifera* in hay asthma.

18. Croupous rhinitis.

Middlemass Hunt (*Journal of Laryngol., Rhinol., and Otol.*, Dec., 1891) reports a case of this comparatively recently described disease. The symptoms were those of a common cold for about ten days, the discharge from the nose being unilateral, very profuse and foul-smelling, the nostril from which the discharge issued being blocked. It was found that a thick white membrane bathed in watery discharge lined the nostril throughout. Detachment of this membrane, which eventually spread to the tonsil, left a bleeding surface underneath. The treatment consisted in removal of the membrane by the writer at short intervals, dusting the abraded surface with iodoform, and the employment of an antiseptic spray. After fifteen days the membrane ceased to form, and the patient gradually got quite well.

Newcomb (*New York Med. Journal*, Sept. 12, 1891) reports

two cases following measles in which injection of boracic acid solutions into the nostril was curative.

Sedziak (*Journal Laryngol., Rhinol., and Otol.*, Sept., 1892) employs wad tampons soaked in equal parts of balsam of Peru and glycerine, and an ointment containing boracic acid and resorcin. Insufflations of aristol are also carefully carried out. [I have just successfully treated a well-marked case of this disease, which was accompanied by keratitis and iritis of non-syphilitic origin, by means of boracic acid solution spray and iodoform and eucalyptol ointment—B. J. B.].

19. The treatment of nasal stenosis.

Astier read a paper before the French Society of Laryngology on May 2, 1892 (*Journal of Laryngol., Rhinol., and Otol.*, Aug., 1892), on the treatment of certain strictures of the nasal fossæ. The apparatus which he uses is a cutting drum 4 to 10 millimètres broad, which is provided with saw-teeth at its free border. It is fixed on to a dental engine and acts as a trephine. It is used for bony nasal stenosis, and is of especial value in cases of septal ridges with adhesions to other nasal structures.

Moure and **Suárez de Mendoza** both expressed their preference for the drill.

Bendelack Hewetson, in a paper read before the British Laryngological Association, July 1, 1892 (*Journal of Laryngol., Rhinol., and Otol.*, Aug. 1892), states his experience of thousands of cases of nasal stenosis in which his "glove-stretcher" instrument has been used, and says that the success of the method is quite assured. The patient is anæsthetised, and the instrument is made to penetrate from the front to the back of the nostril, and is then forcibly opened. In order to keep the opening thus made in the nostril from contracting, and for purposes of cleanliness, a pair of pierced celluloid nasal tubes is placed in the nostrils and worn for seven or eight days. These are removed twice a day, and a weak solution of Condyl's fluid is used to cleanse the naso-pharynx. No untoward results have been seen from the operation, and the relief to symptoms caused by the stenosis is very striking.

Lennox Browne said that he and his colleagues believe that the less the nose is douched after operations the better, lest suppurative otitis be set up. He employs the necessary antiseptics dry.

Dundas Grant (*Journal of Laryngol., Rhinol., and Otol.*, Sept., 1892) describes and figures a double-current nose-piece for nasal douching in which the tube of exit lies in the centre of the tube of entrance.

He restricts the use of even so safe a douche as this is said to

be, to ozæna and caries, and substitutes the coarse spray in all other forms of nasal trouble which need cleansing.

Gibbons (*New York Med. Journal*, July 9, 1892, suggests the use of nasal tubes made of metal or of indiarubber, provided with a spiral spring to make them rigid. The tubes are freely pierced with minute holes throughout their whole length. They have a fine sieve of silk or woollen thread in the posterior end when we are treating nasal stenosis by their introduction into the nostrils. If we treat hay fever with them they are provided with a similar sieve at the anterior end also, to act as a filter. Before introducing the tube it is smeared with carbolised vaseline. A Seilers antiseptic pastille is used to moisten the sieve, and the nostril is cocainised. They are to be removed night and morning, and antiseptic douching is to be carried out. The tubes are of two shapes, viz., flat and crescentic, and they are of fifteen sizes corresponding to Sajow's nasal bougies.

The author says that he has found them of much value in the treatment of nasal stenosis, hay fever, asthma, etc.

20. The treatment of acute coryza.

Capitan (*Méd Bull.*, June, 1892) recommends the following snuffs as abortive measures in this complaint:—

R	Salol	...	...	...	...	gr. xx.
	Acid salicylic	...	...	...	...	gr. iii.
	Acid tannic	...	...	...	...	gr. ii.
	Acid boric	...	...	...	...	ʒi.
	OR					
R	Pulv. talc	...	...	...	...	gr. lxxv.
	Antipyrin	...	...	...	...	gr. xv.
	Acid boric	...	...	...	...	gr. xxx.
	Acid salicylic	...	...	...	...	gr. iv.

Szoldrski (*Münch. Med. Woch.*, No. 43, 1891) has found insufflations of creosol iodide of much use in cases where the nasal secretion is in excess, when this arises idiopathically, and after operation on the nose and naso-pharynx.

21. The treatment of ozæna.

Bronner (*Journal of Laryngol., Rhinol., and Otol.*, Sept., 1892) applies 10 to 50 per cent. solutions of trichloroacetic acid to the interior of the nostrils after cocainisation two or three times a week for several weeks. At the same time any growths in the naso-pharynx are to be curetted and touched with the acid solution. In the intervals between the applications of the acid, the patient is told to use an alkaline douche and a snuff composed of aluminum acetico-tartaratum, menthol, camphor, and boracic acid, to which aristol or euphrasin can be added.

Robertson (*ibid.*, Sept., 1892) says that it is necessary to open and drain the antrum of Highmore in order to cure ozæna and recurrent nasal polypi.

Jones (*Journal of Ophthalmol., Otol., and Laryngol.*, Jan., 1892) introduces glycerine cotton pledgets, once or twice a day for ten minutes, and finds them useful, as indeed other rhinologists have done.

22. A new operation for the reduction of hypertrophy of the middle turbinated body.

Whiting (*New York Med. Journal*, Dec. 12, 1891) advocates the reduction of this body by drilling out a piece of the bone with a trephine. The mucous membrane is then carefully folded down over the cut surface near the septum, and retained in position by means of a plug which is rendered thoroughly aseptic. Healing takes place by first intention, and therefore the disadvantage of having scar tissue in the nostril, as is the case after other operations for reduction of this hypertrophy, is done away with. At the same time very little mucous membrane is destroyed.

23. The relationship of gout and rheumatism and loss of smell.

Durant (*New York Med. Journal*, June 24, 1892) suggests that anosmia in patients who suffer from no lesion of the nose or nervous system sometimes depends on one or other of these constitutional states. He reports complete cure of a case that had resisted other methods of treatment, and that exhibited phenomena of gout and rheumatism in the joints, etc., after ichthyol mixed with water had been administered internally, and ichthyol ointment had been gently rubbed into all the painful parts.

24. Massage in the treatment of nose and throat disease.

Kellgren advocates this method in his work, "The Technic of Manual Treatment" (Y. J. Pentland: Edinburgh, 1890). He alleges that not only the nose, but the whole of the tongue, submaxillary, and sublingual glands, pharynx, naso-pharynx and larynx can be affected beneficially by massage. The methods of Braun and Laker appear to be the same as those of Kellgren when applied to mucous membrane. The vibrations are very rapid—*e.g.*, 600 to 2,000 per minute—and this rapidity, combined with regularity, is said to be essential. The operation is performed by means of a probe, which is disinfected by passing it through a flame and dipping it in a 1 per cent. solution of creolin, after which it is covered with a wad moistened with 2 to 8 per cent. cocain solution. Each sitting lasts from a few seconds to several minutes, and the whole treatment extends over a period of from three to

six weeks. It can be applied to both vocal cords in turn, and is said to cure laryngitis and its sequelæ and adenoid growths in the post-nasal space. As regards nasal disease, it is of value in hypertrophic rather than atrophic conditions, but is specially useful in reflex neurosis. Where a disagreeable smell has been noticed it does great good by stimulation.

25. The treatment of adenoid vegetations in infants.

Lubet-Barbon (*Rev. des Mal. de l'Enfance*, Nov., 1891) finds that in some cases passing a probe covered with an ointment of boracic acid and vaseline (1 in 6) through the nostrils into the nasopharynx is sufficient. If this does not overcome the trouble, he removes the growth with a small pair of forceps, bent to a right angle, passed up behind the palate.

26. The danger of plugging the posterior nares.

Gellé (*Journal of Laryngol., Rhinol., and Otol.*, Jan., 1892) cited the case of a man in whom plugging the post-nasal space for epistaxis was followed by suppurative otitis and cerebral symptoms on the second day of retention of the plug in spite of antiseptic irrigation. The danger is evidently one to be borne in mind.

SUMMARY OF THE THERAPEUTICS OF THE YEAR 1891-92,

CHIEFLY IN REFERENCE TO NEW REMEDIES.

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THE line of movement in pharmacology and therapeutics during the past year continues to follow in the track of modern organic chemistry, and it is interesting to note, as Mr. Martindale has observed, how the introduction of the newer drugs within the last few years has discounted the use of the older and trusty drugs, such as quinine and morphine.

A considerable number of new synthetically-formed compounds has been proposed. Many of them are doubtless of ephemeral reputation, and no discovery of first-class importance can be chronicled. The three modern antipyretics, antifebrin (acetanilide), antipyrin (phenazone), and phenacetin have secured foremost places. Not only has antipyrin maintained its position as an antipyretic and anodyne since its official recognition, but (as pointed out in *Pharm. Journal*, Jan. 2, 1892) the property possessed by it of combining with many other bodies, especially phenols, probably owing to the CO group contained in it, has led to many experiments in the direction of grafting with it other remedies. Among the earliest of these combinations may be mentioned the compound or compounds of antipyrin with chloral hydrate, one of which has now, however, taken its place in medicine under the name "hypnal." A compound of iodine with antipyrin has been described as "iodpyrin," but, like many of the other "pyrin" compounds mentioned, has yet to make its reputation in medicine. On the other hand, phenacetin is said to form an iodine compound, "iodphenin," containing 50 per cent. of iodine, two-thirds of which is very loosely combined, to which the extraordinary bactericidal properties attributed to the compound may possibly be due. But a still more interesting derivative

from phenacetin is that which has been called "phenocoll," which is noticed further on.

Among antiseptics, aristol, a loosely-bound combination of iodine with thymol, has increased in reputation, and has been the subject of a considerable amount of literature; although it would appear probable that a really pure and definite dithymol-iodide would be too stable to be fully effective as ordinarily used. The acceptance accorded to aristol has led to suggestions of similar compounds, among which is one that has been named "europhen," which is represented as being a product of the action of iodine upon isobutyl-orthocresol. It is said to contain 27.6 per cent. of iodine, and to present the advantage of being comparatively free from odour, non-toxic, and very light. Another addition to the same class is iodo- β -naphthol, described as odourless, tasteless, and insoluble. Benzoyl- β -naphthol has also been recommended as an advantageous intestinal antiseptic, and styracol, the cinnamic acid ester of guaiacol, as well as benzoyl-eugenol and cinnamyl-eugenol, are under trial as internal remedies in tuberculosis.

The therapeutics of tuberculosis still wait for the master hand, and as yet no definite verdict can be given upon its treatment by either (a) bacillary cultures (tuberculin: tuberculocidin); or (b) chemical antidotes (guaiacol: benzosol; potassium cantharidate, cocain cantharidate, etc.).

Of the new drugs alluded to in the summary for 1892, phenacetin, and its derivative phenocoll-hydrochlorate appear to have especially attracted attention. Among the novelties noticed in the present summary are benzoyl-guaiacol, dermatol, diaphtherin, lysol, salophen, tumenol, and paracresotic acid.

I.—ANÆSTHETICS.

1. Chloroform.

The questions that have recently been raised as to the relative purity of different kinds of chloroform, and the influence of possible impurities upon the safety of the induction of anæsthesia, have received considerable attention.

Dr. Biltz has lately published a monograph dealing with this subject, and his observations are of practical importance.

Dr. Biltz regards it as an established fact that the decomposition to which chloroform is liable does not result from the presence of certain impurities, as has been assumed, but that it is a natural characteristic of chloroform. The purer chloroform is, and the greater its freedom from alcohol, the more readily and the more rapidly does it undergo decomposition when exposed to light.

in vessels of white glass containing air. It is to this decomposition that is to be ascribed the danger attending the use of chloroform for medicinal purposes. The decomposition is brought about by atmospheric oxygen displacing, under the influence of light, a portion of the chlorine, while at the same time there is a formation of phosgene gas and water.

The protection afforded by the presence of alcohol, however, is but limited. The joint action of air and light still causes decomposition, but while alcohol is present it takes up the prejudicial products of decomposition, forming with them products that are harmless, and even suitable for producing anæsthesia. When the alcohol has been exhausted in this way the liberation of chlorine and the formation of phosgene gas are no longer counteracted. The time that may elapse before this decomposition commences is dependent upon the intensity of the light to which the chloroform is exposed, also to some extent upon the quantity of air with which it is in contact. Consequently in diffused daylight the alteration is more rapid in summer than in winter, and it is still more rapid in direct sunshine. In the latter case chloroform absolutely free from alcohol will be decomposed within one or two hours in summer-time, and in diffused daylight within one day, while in winter it may take ten days, according to the clearness of the atmosphere.

In regard to the protection afforded by alcohol, Biltz finds that with 1 part of alcohol in 400 decomposition is prevented only for a few weeks or months. With double that proportion the preventive effect lasts for eleven months, and with 1 per cent. it continues much more than a year. He is of opinion that all the statements made as to the keeping quality of certain kinds of chloroform point only to the circumstance of failure to detect the presence of alcohol to which the permanence of the chloroform was due. It will be remembered that a new method of refining chloroform has been introduced by M. Pictet. His process mainly consists in subjecting chloroform to intense cold, by which it is caused to crystallise, and the crystals when separated and liquefied furnish absolutely pure chloroform.

Biltz finds that Pictet's chloroform is one of the best, if not the best, to be met with. But Schacht and Biltz demonstrated to the Berlin Pharmaceutical Society that the Pictet chloroform undergoes decomposition precisely in the same way and at the same rate as ordinary chloroform, and that the precautions of adding alcohol and keeping in the dark are as indispensable in the one case as in the other (*Pharm. Journal*, June 18, 1892, from *Pharm. Centralblatt*).

Dr. R. du Bois-Reymond has investigated the physiological action of Pictet's purified chloroform, and of the residue containing the impurities. He found that the latter diminished blood-pressure, and reduced the heart's beat in a marked degree (*Brit. Med. Journal*, Jan. 30, 1892). Drs. Charteris and MacLennan have examined six different brands of chloroform, and conclude that different chloroforms exhibit a very evident diversity of action. Some sorts caused tremors (in guinea pigs), and some varieties did not (*Brit. Med. Journal*, March 26, 1892). These inquiries are of considerable interest, even although they do not bring us much further than we were.

II.—LOCAL ANÆSTHETICS.

2. Cocain.

Schleich, in order to avoid all possible danger of intoxication from cocain, recommends what he terms the "infiltration method." This consists in multiple injections, over a small area, of a very dilute ($\frac{1}{5}$ per cent.) solution of cocain. It has been long known that hypodermic injections of pure water can induce slight local anæsthesia, acting on the tissues as a chemically different body, for "physiological solutions" of salt or sugar have no such effect. The maximal dose of cocain thus administered would be about $\frac{1}{2}$ grain. By the aid only of $\frac{1}{5}$ per cent. cocain solution, combined with ether-spray, the author has carried out 224 operations, including five laparotomies. Gluck and Oppenheimer confirm Schleich's results, and the latter testified that he had himself undergone an operation for sloughing whitlow of the thumb, involving scraping out the bone and cauterisation with zinc chloride, without the least pain, under Schleich's method.—(*Therap. Monatsh.*, Jan., 1892.)

Bignon draws attention to an important practical point relating to cocain. He points out, and the writer can confirm it, that cocain in *acid* solutions suffers loss in its anodyne power. All mineral acids conceal the anodyne virtue of cocain, which, however, is fully restored by neutralisation with sodium carbonate. The maximum anæsthetic effect is obtained when cocain is suspended in a feebly alkaline fluid ("cocain milk"). The commercial salts of cocain are often acid, and Bignon thinks that variations in the acidity of the solution are the chief cause of the differences of opinion as to the dose requisite for local anæsthesia.—(*Therap. Monatsh.*, June, 1892, from *Bull. Gén. de Thér.*)

Dr. Chadbourne, U.S.A., has investigated, in Liebreich's laboratory, a new coca base, which he terms tropacocain (benzoyl-pseudo-tropeïn). It closely resembles but is not identical in local

action with cocain. It is less toxic, and its solutions keep better.

3. Action of tropacocain on the human eye.

Professor Schweigger finds that the muriate of tropacocain causes complete anæsthesia more quickly than a cocain solution of the same strength. This anæsthesia does not last as long as that produced by cocain, but a drop or two of the solution can be added from time to time, and complete anæsthesia thus kept up as long as is necessary.

Mydriasis was occasionally seen, but only in slight degree. No ischæmia was present; on the contrary, in a few cases there was very slight congestion for a few seconds. No harmful symptoms of any kind were seen, and in most cases tropacocain seems to be as good as—in some cases better than—cocain. For the extraction of foreign bodies from the eye tropacocain is preferable to cocain because of its quicker action, and iridectomy has been performed in less than two minutes after one or two drops of a 3 per cent. tropacocain solution had been put upon the eye and without pain being felt by the patient.

Dr. Silex, first assistant of Professor Schweigger, has used tropacocain in his practice, and has obtained similar results. He has performed tenotomy in less than half a minute after applying a 3 per cent. tropacocain solution, and the operation was painless. In all cases a 3 per cent. solution was used, and whether a weaker solution would give as good a result, or a stronger a better, is yet to be proved.

It is to be hoped that tropacocain will soon be given a trial in other than ophthalmic work, and for actual use the synthetically prepared hydrochlorate of tropacocain is to be recommended. (*Brit. Med. Journal*, Aug. 20, 1892.)

III.—ANTISEPTICS AND ANTIPYRETICS.

4. General remarks.

Of late years great advances have been made in the study of antiseptics. As soon as it was discovered that substances containing the benzene nucleus—such as phenol—possessed germicide properties, chemists at once set to work to test the powers of such bodies to see whether any of them were superior to carbolic acid. As the result of their studies we have a number of new preparations—aseptol, creolin, sozoiodol, lysol, etc.—all of which deserve careful attention. By the action of sulphuric acid on benzene compounds, stable bodies, termed sulphonic acids, can be formed. The formation of sulphonic compounds probably explains the

results of **Laplace**, who found that mixtures of phenol and sulphuric acid were more powerful antiseptics than the parent substance. In making similar experiments **Hueppe** found that better results were obtained by using crude phenol than with the pure phenol. From this he concluded that the higher homologues were capable of affording more powerful antiseptics than phenol. **Fraenkel** fully corroborates this idea, and, in his researches on cresols, found also that addition of sulphuric acid increased their antiseptic power. Metacresylsulphonic acid was found to be the most active compound. Unfortunately, however, these compounds were so irritating and so caustic that their use was very limited, and other methods of using the cresols had to be sought. As a first step soapy emulsions were prepared by treatment with alkalies, and yielded the creolins and the lysol of commerce—all highly alkaline emulsions of the higher coal-tar distillation products, prepared with the aid of a resin soap. These are powerful antiseptics, but all possess the disadvantages of (1) very variable composition, (2) causing instruments and fingers to become slippery by reason of their free alkalinity, (3) becoming oxidised on exposure to the air.

5. Benzoyl-Guaiacol (Benzosol), a compound of benzoic acid and of guaiacol, the chief active constituent of creosote, is recommended by Dr. F. Walzer as an agreeable and harmless substitute for creosote. Commercial creosote is usually contaminated with cresols, which are very irritating. Benzosol is a colourless crystalline powder, almost tasteless and odourless. It is insoluble in water, and, in the digestive tract, chiefly in the small intestines, splits up into guaiacol and benzoic acid.

Dose, 4 to 12 grains, in cachets or pastilles. Guaiacol-carbonate has also been proposed as an unirritating form of administration in tuberculosis. Dose, 3 to 7 grains and upwards.

6. Dermatol, a commercial name for a basic gallate of bismuth. It is a yellow, insoluble powder, resembling in appearance iodoform, and is recommended as an odourless substitute for it. It lessens secretion from moist surfaces, and promotes healing, but the experience of several observers scarcely justifies us in ranking it as equal in efficacy to iodoform. **Bluhm** and **Davidsohn** (*Ther. Monatsh.*, Dec., 1891), **Colasante**, **Azúa**, and **Bürtzeff** (*Brit. Med. Journal*, 1892).

Werther and **Isaac** speak highly of it (*Ther. Monatsh.*, Sept., 1892).

7. Diaphtherin (διαφθείρω, to destroy). This body is a sulphonic derivative of oxychinolin, and is related to aseptol. It occurs in amber yellow crystals, and differs from many other

"aromatic" antiseptics in being readily soluble in water, in almost every proportion, and in dilute spirit. Its watery solution gives a blue green with ferric chloride, and excess of soda precipitates oxychinolin. Kronacher (*Münch. Med. Woch.*, May 10, 1892) relates his experience of diaphtherin (oxychinaseptol), while Emmerich (*ibid.*) shows that this drug, even in weak solutions, possesses powerful bactericidal properties, while its toxic properties are slight. Kronacher has used it in surgical practice for more than a year, and mostly in 1 per cent. solution. In cases of ulcers, etc., and as an antiseptic in operations, it has given the desired results. No ill effects have been noticed when it has been applied to large surfaces, as in extensive operations. In a few cases it has given rise to a slight feeling of burning, but this has quickly passed away, and eczema has never been produced by it. Instruments should be placed in some other antiseptic solution, as a black deposit is formed on them if the nickel in them is not pure. Diaphtherin has been especially useful in cases of burns and ulcers of the leg (*Brit. Med. Journal*, June 4, 1892, and *Therap. Monatsh.*, July, 1892).

8. Paracresotic acid.

A homologue of salicylic acid, obtained from cresol. In white needles, easily soluble in alcohol, chloroform, and ether; almost insoluble in water. It is the least poisonous of the three isomeric cresotic acids, and the only one that can be safely used. As an antipyretic it is inferior to salicylic acid, but is better tolerated by the digestion (*The Extra Pharm.*, 1892). Egasse (*Bull. Gén. de Thér.*, Jan., 1892) draws attention to the value of paracresotic acid as an antipyretic. It has been employed in the form of a cresotate of soda by Loesch, who found that doses of 6 to 8 grammes were perfectly well borne by adults. Demme has chiefly employed this drug in children for its antipyretic and anti-fermentative action. He finds it of great benefit in acute articular rheumatism, having somewhat the same action as salicylic acid, while it is better borne. In the catarrhal pneumonia of children it has been employed in the dose of 10 centigr. every two hours, and has shortened the course of the disease and rendered recurrences less frequent. In typhoid fever it diminished the diarrhoea. It also gave good results in the gastro-intestinal catarrh of nursing women. The maximum daily dose for young children should not exceed from 0.5 gramme to 1 gramme, but young adults may take from 3 to 4 grammes daily (*Brit. Med. Journal*, March 19, 1892). A preparation termed *Solveol* is a solution of sodium cresotate with cresols.

9. Phenocoll hydrochlorate.

This new antipyretic was noticed in the "Year-Book" for 1892, and has since received further attention. Hertel, Herzog, and Aronsohn have given favourable accounts of it, and Cohnheim reports additional investigations with this drug in twenty cases. In five cases it was used as an antipyretic. A marked effect was produced in from three to four hours, the average fall of temperature being 2° F., and once 4° F. There was some chilliness, and even more sweating than with antipyrin. It was used as an anti-neuralgic in ten cases, seven of which were suffering from influenza. Its therapeutic effects here would place it alongside the best anti-neuralgic remedies. It was useless in hysteria, as well as in cases where other anti-neuralgic remedies failed. It was of service as an anti-rheumatic in two cases of acute rheumatism, but without effect in a case of chronic rheumatism. It gave a negative result in two cases of bronchial asthma. A not inconsiderable antipyretic effect was noted after a single dose of 0.5 grm. As an anti-neuralgic it was given in 0.5 grm. doses three times a day. The largest single dose given was 1 grm., and the largest amount in the day 4.5 grms. No unpleasant effects, such as collapse, etc., were produced by it. The author strongly recommends the further use of this drug in neuralgia, and especially when it is due to influenza (*Ther. Monatsh.*, Jan., 1892). Albertoni (*Rif. Med.*, Jan. 5, 1892) reports a series of thirty-four cases of malarial fever which were treated with phenocoll. Of these, twenty-four were permanently cured, in five the result was *nil*, and in the remaining five it was doubtful. In some of the cases that were cured the disease was very severe, and quinine had done little or no good. The dose of phenocoll used was always 1 gramme, given in powder or solution from five to seven hours before the attack. The substance produces no disagreeable effects, and its taste is easily masked by sugar. The attack was cut short after one, or at most two doses, but the administration of the drug was continued for some days after the cessation of the fever, in order to prevent relapse (*Brit. Med. Journal*, April 2, 1892).

10. Salophen.

A compound ether of salicylic acid. It contains 59.9 per cent. salicylic acid, and occurs in minute white scales; almost insoluble in water. It is tasteless and inodorous, and was introduced as a substitute for salol, on account of the ill effects thought to result from the liberation of phenol from the latter. Like salol it is unaffected by acid gastric juice, but is decomposed in the small intestine, salicylic acid being set free. Any undecomposed salophen is excreted in the faeces (*Therap. Monatsh.*, Jan., 1892).

Fröhlich speaks most favourably of its action in acute rheumatism, and prefers it to sodium salicylate or salol, because it is non-hygroscopic, keeps well in any form, is tasteless, and does not cause the unpleasant effect often induced by the former drugs (*Ther. Monatsk.*, Sept., 1892). Salophen is sometimes excreted in the crystalline form in the sweat.

11. Salipyrin.

A compound of antipyrin and salicylic acid has also been successfully used by **Trechtenberg** in acute rheumatism, and is effective even in chronic rheumatism and sciatica. Dose, 1 gramme several times a day (*Brit. Med. Journal, Epit.*, July 30, 1892).

12. Lysol.

A German competitor of creolin. It is a dark-coloured alkaline liquid, incompatible with acids. **Pée** (*Deutsch. Med. Woch.*, Oct. 29, 1891) records his opinion of the high value of lysol as an antiseptic, and points out the advantages it possesses over similar substances in solubility, convenience, cheapness, and safety. Consisting of a mixture (in about equal proportions) of cresol and soft soap, lysol is readily soluble in water at any temperature. A 1 in 200 solution destroys streptococci in fifteen minutes, resembling in this respect a 1 in 500 solution of corrosive sublimate, and a 1 in 200 solution of carbolic acid. Lysol is equally suitable for disinfecting the hands, instruments, or the field of operation, while its poisonous potency is only one-eighth that of carbolic acid and half that of creolin. As a disinfectant in midwifery, **Pée** recommends a 1 per cent. solution of lysol, his experience of its use having been very favourable. It is especially suited for midwives and nurses, on account of its safety, cheapness, and convenience (*Brit. Med. Journal, Suppl.*, Nov. 28, 1891). **Cadéac** and **Guinard** also consider lysol to be a useful and cheap disinfectant, of sufficient activity.

13. Peroxide of hydrogen.

From a large experience with this drug, **Stuver** (*Therap. Gazette*, March, 1892) draws the following conclusions:—(1) A reliable solution of hydrogen peroxide is an efficient and safe germicide; (2) by its oxidising power it rapidly decomposes pus, diphtheritic membranes, and other pathological decayed deposits and effusions; (3) it is an excellent deodoriser, and a non-irritating cleansing agent for foul wounds, abscesses, etc.; (4) it is a valuable diagnostic agent in determining the presence of pus, for, when injected into a part in which suppuration is suspected, it will indicate pus, if present, by causing almost immediate tumefaction.

When employing the drug in this way the surgeon must be prepared at once to use the knife should his suspicions prove correct, as thereby pain will be avoided. A number of suppurating buboes treated by the author did admirably under this method.

14. Boric acid.

The therapeutic value of boric acid externally is admitted, and it is largely and successfully used in surgical practice. **Jaenicke** has submitted it to a thorough investigation, and concludes that although it is a very feeble disinfectant, yet, when freely used, it has remarkable powers in preventing the development and increase of micro-organisms, and of their toxic products. Boric acid, at ordinary temperatures, is soluble in water to the extent of 4 per cent. only. But **Jaenicke** has discovered that a compound can be prepared by heating equal parts of borax, boric acid, and water to boiling-point, which dissolves in water to the extent of 16 per cent. It retains all the virtues of boric acid, and he has employed it with great advantage in purulent affections of the middle ear. (*Ther. Monatsh.*, Sept., 1891.)

For **Hypnotics** see article on "Diseases of the Nervous System, p. 62.

Trional and **Tetronal**. See article on "Diseases of the Nervous System," p. 99.

15. Europhen.

It is known that by the action of iodine upon bodies of the phenol series in the presence of alkalis, compounds are produced that are claimed to possess antiseptic properties. The best known of these is the "dithymol-iodide," which has been introduced into medical practice under the name "aristol." It is now stated that similar properties are possessed under more advantageous conditions by certain compounds formed in a like manner from substitution derivatives of homologues of phenol, and one of these has been described under the name "europhen." Europhen is an amorphous yellow powder, resinous to the touch and adhering to the mucous membrane or intact cuticle much more readily than iodoform. It is stated to have a peculiar aromatic odour, recalling that of *o*-cresol and also of saffron. In water and glycerine it is insoluble, but it is freely soluble in alcohol, ether, chloroform, collodion, traumaticin and fixed oils. A solution in oil is said to be useful for subcutaneous injection in various affections, but it should be filtered before use. The europhen action seems to be similar to that of iodoform, by slow liberation of iodine in contact

with pus; but it is claimed that the new compound presents the advantage of being comparatively free from odour, non-toxic, and so light that a given weight of euophen will cover five times as much wound surface as the same quantity of iodoform. The selection of a trivial name for this novelty can hardly be deemed a happy one, since "euophen" is sufficiently near to "*euphorin*," the designation recently applied to phenyl-urethane, to provide for a considerable amount of confusion should both compounds come into general use. (*Pharm. Journal*, Aug. 1, 1891.) The observations of Löwenstein and Nolda attest the above statements. (*Therap. Monatsh.*, Sept., 1891 and Oct., 1891.) Several Russian surgeons have also reported upon euophen as a useful substitute for iodoform. (*Brit. Med. Journal, Epit.*, Aug. 13, 1892.)

16. Thiophen iodide, another rival of iodoform, is recommended by Hock, of Vienna. Thiophen (C_4H_4S) is a sulphuretted hydrocarbon of the aromatic series, and its iodide ($C_4H_2I_2S$) crystallises in white plates, insoluble in water. Soluble in alcohol, ether, or glycerine. (*Ther. Monatsh.*, Feb., 1892.)

17. Ichthyol.

This curious compound maintains its place, and a considerable literature has gathered around it. A few of the recent researches may be alluded to. M. Latteux, of Paris, has shown, by bacteriological experiments, that ichthyol has well-marked antiseptic qualities. (*Extr. des Bull. et Mém. de la Soc. de Méd. Prat.*, 1892.) Jadassohn strongly recommends the treatment of gonorrhœa by (1 per cent. and upwards) injections of ichthyol, and thinks that by its means "the ideal of the treatment of gonorrhœa is attained." (*Deutsch. Med. Woch.*, 1892.) Several authors, German, French, and Italian, confirm Freund's high estimate of the value of ichthyol as an anodyne and absorbent in inflammatory affections of the female genital organs, and Klein considers it almost a specific in the treatment of erysipelas. He employs an ointment of equal parts vaseline and ichthyol.

Two substitutes for ichthyol have been lately proposed:—

18. Thilandin, a brown sulphuretted (3 per cent. sulphur) lanolin, recommended by Saalfeld as an energetic and yet un-irritating remedy in eczema. (*Ther. Monatsh.*, Nov., 1891.)

19. Tumenol, a sulphonised product of mineral oil, miscible with water. Applied dissolved in a mixture of equal parts of ether, rectified spirit, and water or glycerine. Commercial tumenol is a mixture of a sulphone and a sulphonic acid. These are prepared for separate use, and are termed "tumenol oil" (tumenol-sulphone) and tumenol powder (tumenol sulphonic acid). Neisser

speaks well of the use of tumenol in eczema, ulcers, and as an anti-pruritic. (*Ther. Monatsch.*, May, 1892.)

20. Diuretics, Action of ; cf. an interesting article by Dreser upon diuresis, especially the excretion of water, considered in the light of Van t'Hoff's theory of solutions. He concludes that caffen and salines act as direct stimulants to the water-secreting apparatus of the kidney. (*Arch. f. Exp. Path. u. Pharm. Bd.* 29, 303.)

21. Diuretin. See article on "Diseases of the Kidneys," p. 152.

PUBLIC HEALTH AND HYGIENE.

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It is not possible here to do more than briefly review those subjects which are judged to have been of special hygienic interest and importance during the past year. The science of preventive medicine is an actively progressive one, and each of its many branches presents at the end of a year much material for review ; so that a large amount of matter, though of interest and importance, will have to be ignored to make place for the consideration of that which is of more general concern.

By far the greatest danger that has threatened the public health during the year is **cholera**, and we are in the position to say that the danger has been faced and met successfully. At certain places on the Continent, and notably Hamburg, this scourge has left a heavy trail of sorrow and misery in its wake, and many thousands of lives have been sacrificed to a disease against which, there is no gainsaying, we have every means of defence, if we choose in due time to avail ourselves of them.

Cholera is essentially a "preventable disease"—i.e., a disease which, by the adoption of efficient precautions, can be prevented ; and, as it is preventable, those are surely to blame who, where the opportunities are given, do not succeed in preventing it. Such neglect cannot be now urged as the outcome of ignorance of the causes that induce the origin and spread of the disease—our present knowledge is such as to make such a plea untenable for a moment. Apathy and disregard for the public health interests are the sole obstructions now remaining to a final closing of the chapter of cholera visitations in Europe.

Our increased knowledge of the origin and mode of spread of infectious diseases has borne fruit in a more proper and efficient prophylaxis, and a marked reduction in the rate of mortality from zymotic causes generally during late years has been the outcome. There is an aspect, however, of the study and practice of preventive medicine that grows in importance the more one considers

it. It is the poor who are now chiefly concerned in the growth and dissemination of infective material ; and, do what we will towards the sanitary condition of the homes and areas in which the poorer section of the community will ever *mass* themselves, there will always remain conditions favourable to the wide spread of an epidemic when a disease succeeds in once implanting itself in their midst ; and there is no questioning that if a mild unrecognised case of cholera, say in 1893, should by any chance pass our "first line of defence" (*i.e.*, the inspection, etc., of our port sanitary authorities), and reach our densely-packed populace in the East of London, the spread of the disease and consequent mortality would probably be appalling, in spite of the admirable provisions now made against the spread of the disease, and the intelligent and enthusiastic co-operation of sanitary officials which may be counted upon. The aspect of the question which is more especially alluded to above is this—that though it may appear a well-nigh hopeless task, every effort should be made to teach the poorer section of the community the duties which in the case of an epidemic they not only owe to themselves, but to their neighbours, in the direction of making every endeavour to stamp out the disease and to discourage its spread. The distribution of slips containing all information as to preventable measures, couched in simple and unmistakable language, would effect a great deal in this. Moreover, with regard to cholera, it is a question whether we do not talk a little too much about "our first line of defence" and too little about "the enemy's stronghold." Certain areas of India are the notorious cradles of the cholera vibrio. Should not we attack these, at any expense, by every means in our power, in an earnest, enthusiastic, and determined manner, and deal with the enemy in his stronghold, rather than wait for his advance to our shores ? The fact is not lost sight of that such a measure would entail vast trouble and expense, but the object aimed at is one of European importance and concern, and if necessary European co-operation could probably be counted upon.

The line of march of the epidemic of 1892 followed broadly the same trade-routes by land and water which it did in 1829 and 1843. On the other hand, in 1865-66 the disease first appeared in Suez, and following the line of public traffic, extended thence through Egypt to the Mediterranean ; and this route, up to the last year, has invariably been maintained by subsequent epidemics. The result has been that the Red Sea ports have been considered the vulnerable points, and during the past year an International Sanitary Conference has met at Vienna to discuss the important questions of "quarantine" and "the Suez Canal

route of infection." Nothing definite has yet resulted from this conference.

In the recent epidemic every effort was made to check the progress of the disease, which had been alarmingly rapid, on the eastern shores of the Caspian Sea ; but this natural boundary did not suffice, together with a rigorous quarantine, to prevent the disease from appearing on the western shores, and thence travelling westward. The precautions taken by the Russian officials to take advantage of the natural barrier afforded by the Caspian Sea were admittedly those of a most extraordinary and unprecedentedly rigorous quarantine, which involved the absolute arrest of all trade, but this proved of no avail. Surely, no better instance of the futility of quarantine, *per se*, as a means of preventing the spread of cholera could well be adduced !

To meet the possibility of the disease reaching our shores, and establishing itself in our country, from the infected areas upon the Continent, every precaution was adopted which the Local Government Board and sanitary authorities could devise. These were carried out by sanitary officials with a thoroughness and an earnest enthusiasm deserving of praise.

Among the various new measures which were taken this year against the threatened visitation of cholera may be mentioned the following :—

The Local Government Board issued instructions to the keepers of all common lodging-houses in London as to the action they were to take in the event of cholera breaking out. They were instructed to report immediately to the authorities any case of a suspicious nature, and to have the suspected individual isolated. They were to carefully watch their lodgers, and to call in a doctor immediately any sign of illness became apparent.

The same Board kept themselves in personal conference, through their medical staff, with the sanitary authorities of those ports that are in communication with the ports of Western Europe ; and they issued orders prohibiting the importation into England of rags from France, and also from the ports of the Black Sea, the sea of Azov, and Turkey in Asia ; and the importation of rags, bedding, and diseased or filthy clothing from any European port north of Dunkirk, other than those of Norway, Sweden, and Denmark, was also forbidden.

On intelligence being received of the severe outbreak at Hamburg, extraordinary measures were immediately taken with a view to ensuring proper organisation of sanitary administration in our ports, and efficient means of dealing with any cases that might be introduced into England ; and medical officers of the

Board were instructed to proceed immediately to those places where there was reason to suspect that vessels from Hamburg might arrive, in order that a vigilant watch for imported cholera could be made in unison with the medical officer of health.

The Board also communicated with the Metropolitan Asylums Board, and with the several sanitary authorities in London; and letters were sent to each medical officer of health in the Metropolis asking him to consider and determine as to the provisions which could be immediately made in the event of any case of cholera occurring in his district.

The following Order was also issued by the Local Government Board, and it aims at stopping one of the most direct channels by which cholera is liable to be imported among us—*i.e.*, by pauper aliens—for these foreign importations, in their filth and low vitality, are always the greatest victims of cholera, and since they invariably drift to the most uncleanly and unhealthy areas in our midst, they thus implant the germ of disease upon its most favourable soil.*

“Local Government Board, Whitehall, S.W.,
“Aug. 29, 1892.

“SIR,—I am directed by the Local Government Board to state that it appears that large numbers of aliens in a filthy and otherwise unwholesome condition are now being brought into this country, and that the danger of the introduction of cholera is thereby increased. Under these circumstances the Board have thought it desirable to issue an Order altering the cholera regulations made by them on Aug. 28, 1890, so as to impose certain restrictions on the landing of persons from ships bringing passengers of the class referred to, except under conditions which would allow of their being kept under observation, although the ship by which they have been brought may not on arrival have been affected with cholera within the meaning of the regulations.

“The Order confers power on the medical officer of health in the case of any ship which has on board passengers of the class above mentioned, to certify that in his opinion, with a view to checking the introduction or spread of cholera, the persons on board should not be allowed to land until they satisfy him as to their names, places of destination, and their addresses at such places. When such certificate has been given no person on board shall leave or be allowed to leave the ship unless he satisfies the medical officer of health as regards the particulars specified.

* In view of the possible importation of cholera into Great Britain in 1893, I have thought it advisable to insert the order and the letter accompanying it in full.

“Any person who satisfies the medical officer of health as to these particulars may leave the ship, but in that case it will be the duty of the medical officer of health forthwith to give notice to the clerk of the sanitary authority of the name of the person and his address at his place of destination, and it will then be the duty of the clerk to transmit the same to the local authority of the district in which the place of destination of the person is situate, so that the person may be kept under observation by such local authority.

“When the person fails so to satisfy the medical officer of health, the Order prohibits his leaving or being allowed to leave the ship, and any person contravening this regulation will be liable to a penalty of £50.

“The provisions above referred to, as already stated, apply to a ship which is not infected with cholera. Article 1 of the Order has the effect of imposing like conditions with regard to persons leaving a ship which is infected with cholera, so far as regards persons who are not certified by the medical officer of health to be suffering from cholera or from any illness which he suspects may prove to be cholera.

“Article 4 provides that the words in the Order shall have the same meaning as words in the Regulation of Aug. 28, 1890, and, consequently, the term ‘medical officer of health,’ as used in the Order, will include any duly qualified medical practitioner appointed by a sanitary authority to act in the execution of those regulations.

“Two copies of the new Order are enclosed.—I am, Sir, your obedient servant,

“HUGH OWEN, Secretary.

“The Clerk to the Sanitary Authority.”

“The Order is as follows :—

“To all port sanitary authorities,

“To all masters of ships,

“And to all others whom it may concern.

“Whereas by an Order dated the 28th day of August, 1890, we, the Local Government Board, made regulations under Section 130 of the Public Health Act, 1875, and the Public Health Act, 1889, with a view to the treatment of persons affected with cholera and preventing the spread of cholera :

“And whereas Article 12 of those regulations provides as follows :

“‘The medical officer of health shall, as soon as possible after any such ship has been certified to be infected with cholera, examine every person on board the same, and in the case of any

person suffering from cholera or from any illness which the medical officer of health suspects may prove to be cholera, shall certify accordingly; and any person who shall not be so certified by him shall be permitted to land immediately on giving to the medical officer of health his name and place of destination, stating, where practicable, his address at such place.

“The name and address of any such person shall forthwith be given by the medical officer of health to the clerk to the sanitary authority, and such clerk shall thereupon transmit the same to the local authority of the district in which the place of destination of such person is situate”;

“And whereas it is desirable that the said Order should be amended as hereinafter appears:

“Now, therefore, we, the Local Government Board, do, by this our order, in the exercise of the powers enabling us in that behalf, make the following regulations, and declare that they shall be duly enforced and executed:—

“Article I. Article 12 of the recited order shall be amended by the omission therefrom of the words, ‘and any person who,’ and the following words to the end of the first paragraph, and the insertion of the following words in place thereof: ‘and a person who shall not be so certified shall not be permitted to land, unless he satisfy the medical officer of health as to his name, place of destination, and address at such place.’

“Article II. Where a vessel is not infected with cholera, but has passengers on board who are in a filthy or otherwise unwholesome condition, the medical officer of health may, if in his opinion it is desirable with a view to checking the introduction or spread of cholera, give a certificate in duplicate in the following form, or to the like effect, and shall deliver one to the master and retain the other or transmit it to the sanitary authority:

“Certificate.

“ day of , 189 .

“Sanitary Authority of .

“I hereby certify that I have examined the ship from now in the port of , and I find that she has passengers on board in a filthy or otherwise unwholesome condition, and that, in my opinion, it is desirable, with a view to checking the introduction or spread of cholera, that the persons on board the ship should not be allowed to land unless they satisfy me as to their names, places of destination, and addresses at such places.—Signed

“Medical Officer of Health (or Medical Practitioner appointed by the Sanitary Authority).

“Article III. When such certificate has been given, no person on board the ship shall leave or be allowed to leave the same unless he satisfy the medical officer of health as to his name, place of destination, and address at such place; and such name and address shall forthwith be given by the medical officer of health to the clerk to the sanitary authority, and such clerk shall thereupon transmit the same to the local authority of the district in which the place of destination of such person is situate.

“In this article the term ‘local authority’ means any urban or rural sanitary, and in the Administrative County of London any sanitary authority as defined by the Public Health (London) Act, 1891.

“Article IV. This Order shall be read as one with the recited Order, and words herein shall have the same meaning as words in that Order.

“Given under the Seal of Office of the Local Government Board this 29th day of August in the year 1892.

“HENRY H. FOWLER, President.

“HUGH OWEN, Secretary.

“Notice.—The Public Health Act, 1875, provides, by Section 130, that any person wilfully neglecting, or refusing to obey or carry out, or obstructing the execution of any regulation made under that section, shall be liable to a penalty not exceeding £50.”

There were altogether about twenty-eight cases imported from abroad, and in no single instance did the disease spread to any individual in Great Britain. The Local Government Board and the sanitary authorities are justified in congratulating themselves most heartily upon this result, which points, most unmistakably, to a degree of efficiency in preventive measures which has never been equalled in this or any other country. The germs, however, have now been widely scattered over certain areas on the Continent, and when one considers the history of previous epidemics, one cannot look towards the ensuing year without grave misgivings of further danger ahead. It is the duty, then, of individuals—as well as of corporate bodies—to prepare themselves against this danger which threatens, to set their houses in order, and to aid the poorer section of the community in doing the same, for it is by cleanliness of the house and premises, along with personal cleanliness and a few simple precautions with regard to food and drink, that we shall successfully defy what is essentially a filth-disease. Our water supplies will especially have to be most assiduously guarded—the polluted water of the Elbe has

furnished the oft-told source of the epidemic at Hamburg—and let us guard, at any cost, the upper reaches of the rivers which yield our supply when danger once more faces us, or history will again repeat itself (for sand filtration will avail us little).

(For the regulations as to the best means of treating patients affected with cholera, advised by the Royal College of Physicians, see article on "Infectious Fevers," p. 189.

Regarding the vibrio of Asiatic cholera (*vibrio cholerae Asiaticæ*) recent bacteriological research—chiefly by Gamaleïa, Haffkine, Hueppe, Doyen, and Koch—has gone far to establish the identity of Koch's "comma bacillus" as the *vera causa* of the disease, and to dispel the wide scepticism which has prevailed for several years upon this point. The difficulties that now have to be met by those denying this fact very greatly exceed any which arise in accepting it.

Although there are many questions yet to be cleared up—and foremost the fact that many individuals have swallowed cultivations of the germ with impunity—M. Haffkine has removed one of the difficulties that stood in the way of accepting Koch's microbe as the true cause of cholera. It had hitherto been found impossible to induce cholera in the lower animals by the injection of the microbe, but this observer has succeeded in effecting this in rabbits by gradually "acclimatising" cultivations of the microbe to the blood serum of these animals, which otherwise exerts a bactericidal action. The same observer has succeeded, by inoculating successively different animals, in preparing an abnormally virulent form of the vibrio. Several attempts have been made to produce artificial immunity from this disease, and notably by Brieger, Wassermann, Kitasato, and Wooldridge; and there have been found, up to the present, nearly a dozen gentlemen willing to present themselves for inoculation. The "attenuated" virus necessary has been obtained by growing the microbe in a slow current of air, and of this one-eighth of a twenty-four hours old agar culture is injected. A few days subsequent to this, and when the effects of the first injection have passed away, the individual is inoculated with one-eighth of an agar culture of the "exalted" virus. No grave disturbances of health have arisen from these inoculations, and the procedure appears to be safe; and the fact that it ensures absolute immunity from cholera (however the microbe is introduced) in each animal experimented upon points to the conclusion that we may hope for similar results in man.

There are, admittedly, many forms of vibrio similar in appearance to the cholera one, but the latter is distinguishable by its

mode of growth in gelatine, and by various biological characteristics. Dr. Cunningham, however, professes to have isolated several varieties of the *true* cholera microbe, and if we assume all of these to be specific—which is very improbable—inoculation will then probably convey immunity from one ; but there is as yet nothing to prove that this will be the case with the others.

It may be mentioned, in dealing with the vibrio, that experiments favour the use of acid drinks during cholera, since the microbe is incapable of existing in an acid medium.

The past year has also been marked by a considerably increased incidence of **scarlet fever** among the population of London, and the capacity of the hospitals of the Metropolitan Asylums Board has been severely taxed ; and for some weeks the Board had to dispose of over 4,000 such cases. With these infectious hospitals mostly filled to overflowing, on account of the scarlet fever epidemic, the alarm caused by the prospects of a cholera visitation was not diminished, and the Board was under the necessity of admitting that little or no provision could be made in their hospitals for the isolation and treatment of cholera patients. Along with the general prevalence of scarlet fever in London throughout the past summer, the death-rate which has prevailed has been markedly below the average of the previous ten years—that is to say, though the incidence of the disease has been excessive, the mortality has been kept within the mean of the past few years. Here is a point which reflects very satisfactorily upon the manner in which the disease is coped with *after it has appeared* ; but the health-officer, whose duty it is to *prevent* disease, can scarcely find in it much material for satisfaction.

An interesting *Report of the Metropolitan Asylums Board* for the year 1891 was issued in the summer, and amongst a large amount of valuable material may be gleaned the following points of special interest:—A table showing the mortality at various ages among the 42,111 cases of scarlet fever admitted into the Board's hospitals in the years 1871–91 was drawn up. This puts the general mortality at 9·58 per cent. ; but the rate at different ages proved very different—it was three times as great among children under two years of age, and for the first five years of life it was nearly twice the average for all ages. There is a steady decline from the rates (about 30 per cent.) for children of two years or less, until a minimum is reached at from fifteen to twenty, when the percentage death-rate is only 3·33. From the ages one to twenty-five (excepting the fifth year) the mortality among males has been constantly greater than among females. Albuminuria

proved the commonest complication, and occurred in 11 per cent. of all the cases treated in 1891.

How large a share of the Board's work is concerned with **diphtheria** will be gathered from the fact that of this disease 1,312 cases were admitted during 1891. Diphtheria cases were first admitted into the Board's hospitals in the year 1888, since which time the general death-rate from this disease has been 33·63 per 1,000 cases admitted; but the difference in the death-rates at various age-periods has even exceeded that of scarlet fever. Under one year of age it was 59·65 per cent.; from one to two it was 68·79 per cent.; but for the third year there is a slow decline, which reaches to 45·21 in the fifth year of life. In the quinquennial, five to ten, it was 32·49; after which a very rapid decline is manifest, until in the quinquennial, twenty-five to thirty, it reached only 1·05. Beyond thirty years the line of mortality from this disease will be a slowly ascending one. Though there was a marked preponderance of females admitted from this disease, the death-rate among females was lower than in males. The commonest complication was albuminuria (17·1 per cent.), and next upon the list comes paralysis (11 per cent.).

The **vital statistics** for the closing year are not yet, of course, complete, but those of the first half of the year are available. The population, as estimated by the Registrar-General to the middle of the year, is $29\frac{1}{2}$ millions in England and Wales; and the *birth-rate* among this number amounted to 30·85 per 1,000—which is lower than that for the corresponding period of any year on record, with the single exception of the year 1890.

The *death-rate* for the first quarter was 24·9—the highest since 1879, and 3·3 above the mean of the previous ten years for the same quarter. This high rate was due to the prevalence of epidemic influenza—a factor which had only a temporary disturbing influence; and in the ensuing quarter it was gratifying to see that the rate fell to 18—which is, with three exceptions, lower than the records of any previous year for the corresponding quarter, and 1·2 below the mean rate for the corresponding quarter of the previous ten years.

The *zymotic death-rate* for the first half of the year was equal to a rate of 1·74 per 1,000 persons living—a number well below the mean of the previous ten years, which was 1·91.

For the first quarter *whooping cough* was the most fatal zymotic disease, with a rate of 0·71 (*i.e.*, 0·15 above the mean of the corresponding quarters of the previous ten years), while in the second quarter it fell to 0·48 (*i.e.*, 0·02 below such mean).

Measles was the most fatal zymotic for the second quarter, with an annual rate of 0·57 (*i.e.*, 0·05 above the mean of corresponding quarters of the previous decade); whereas for the first quarter it was only 0·38 (*i.e.*, 0·08 below such mean).

Diarrhœa for the half-year showed a rate of 0·20, which was slightly below the mean of the first quarter for the previous ten years.

It is satisfactory to note the decrease in *diphtheria* mortality, which showed a rate of only 0·18.

Scarlet fever also shows a more marked diminution still, with a rate of only 0·16, as against one of 0·27 as the mean of the first half of the year for the previous decade; and that notwithstanding a marked increase in the incidence of the disease in London.

"*Fever*," in the Registrar-General's reports, includes typhus, enteric, simple continued and ill-defined forms of fever, and this showed a remarkable diminution, and in the first quarter was less than the rate of any first quarter on record. The rate amounted to 0·11 per 1,000 persons living.

Only 175 deaths occurred in the whole population of England and Wales from *small-pox*.

The *rate of infant mortality*, as measured by the proportion of deaths under one year to the registered births, was 149 per 1,000 for the half-year, which was somewhat higher than the average of recent years.

Dr. Turner's Report upon an outbreak of enteric fever, which occurred in the last quarter of 1891, appeared in the late spring of 1892, and his investigations are shown therein to have disclosed yet another source from which the infection may be derived. The sewers and water-supply were, after careful examination, exonerated from furnishing the cause of the outbreak; the fever did not follow the distribution of any particular milk-supply, and thirty-nine patients consumed condensed milk only. "It still remained, then, to find the cause, working simultaneously in each of the infected centres, the existence of which the circumstances of origin of the outbreak appeared to imply." The number of sufferers of Italian nationality led Dr. Turner to investigate whether the ice-cream vendors were the means, through the milk and water which they use in the manufacture of their ice-creams, of spreading the disease. He found that the incidence of attack fell entirely among those who were in the habit of eating these articles, and therefore concluded that the epidemic arose from this cause; and the filthy condition in which he found the dwellings of the vendors lent additional weight to his suspicions.

There has been during the year an increase of the disease

termed **glanders** among horses. The causal factor of the disease is the "bacillus mallei," which is also pathogenic, by inoculation, to man; and as a result of the recent outbreak many human beings have lost their lives. The outcome has been another important step in the direction of preventive medicine.

It is within the province of the Board of Agriculture to deal with the animals infected, though the slaughtering of animals by the owner or local authority is provided to some extent by the Animals Order of 1886. Although the action of the Board had met with such encouraging results in the stamping out of pleuropneumonia and foot-and-mouth disease, the advantage taken of its powers to efficiently cope against glanders was somewhat unduly delayed. There is no disputing the fact that the disease is an essentially preventable one, and that our efforts towards prevention should be directed to a thorough and systematic inspection of horses and stables, and the immediate slaughter of all infected (and even suspected) animals. The larger number of the horses in the Metropolis—where about 70 per cent. of all the cases occurred—are stabled under the most flagrantly unhealthy conditions, and an improvement in this connection will effect much. As an instance of how evil may even spring from good intentions, the water-troughs—now so generally provided throughout London by a humane society, prompted by the best motives—have doubtless furnished no inconsiderable quota in the dissemination of the disease. In glanders there is an infective discharge from the nostrils, and a diseased animal will thereby pollute with the bacillus the trough at which it drinks. The same holds good, of course, with the grass of the field in which such an animal is grazing, and hence the necessity of a very close and skilled inspection to guard against these dangers. It was in the commencement of October that the Board of Agriculture issued an important order to the following effect:—The order came into force on October 17. From that date glanders and farcy have been dealt with as one disease. Local authorities are empowered to placard infected premises, and to regulate the movement of animals on premises where the disease exists. They are, moreover, instructed to brand or mark any diseased or suspected animal, to slaughter at once diseased animals found in public places, and to detain and isolate any suspicious cases. Any animal which may in any way have been in contact with or exposed to the risk of infection is also to be destroyed. In the case of a diseased horse being slaughtered by order of the veterinary inspector, the owner will receive as compensation one-half the value, such sum not to exceed £20. Should, however, a healthy animal

be killed on suspicion, full compensation will be paid. These measures are regarded by the profession as being satisfactory, and the London County Council, which is the controlling power for the Metropolis, is making preparations for the rigid enforcement of the new orders.

Undoubtedly the chief difficulty to be encountered in the stamping out of glanders is that which surrounds the diagnosis of the disease at an early stage; but the experiments of Kalning, Pearson, Preusse, and Nocard bid fair to lead to a removal of this difficulty. As the outcome of the work of these investigators, an extract has been derived from the bacillus mallei, known as "mallein," which can be turned to diagnostic account—since, when introduced into healthy animals, it induces the faintest possible trace of local reaction, whereas in the case of glandered animals the local symptoms are very marked and are accompanied by distinct febrile conditions.

Time alone will prove whether we are to receive another visitation of **influenza** in its epidemic form this winter.

Well-authenticated outbreaks of this disease have occurred at intervals since the twelfth century, and a few doubtful instances are recorded as far back as the time of Hippocrates. A few sporadic attacks of so-called "influenza"—a vaguely-termed condition, variously diagnosed—appear to have been present in Great Britain for many years; but, even if we assume that the influenza recorded has been of the same kind, it must differ materially in many respects from the epidemic form with which we have been of late so much concerned, as evidenced by a difference in the age-mortality of the two complaints, the non-epidemic form affecting chiefly children under one year and old people, the epidemic form attacking persons in the middle period of life (20—60).

The origin of the pandemic of last year, which first appeared in Great Britain at Hull, seems to be wrapped in some obscurity, for, unlike former epidemics, it did not reach the West of Europe by way of Russia, where it appears to be endemic to a variable extent.

We are largely indebted to the elaborate and exhaustive report of **Dr. Parsons**—which appeared last year—for much valuable information with regard to this disease. Its mode of spread is, however, not yet thoroughly defined, although little doubt is now entertained that the bacillus of Pfeiffer, Kitasato, and Canon is the *vera causa*, and that the disease should be classed with the specific fevers. That it is distinctly infectious admits of no doubt, and that it is chiefly air-borne seems equally evident,

but the probability is great that there are other ways by which the contagium can travel. Dr. Parsons believes that it is propagated mainly, if not entirely, by human intercourse, and not necessarily by a person suffering from the disease. He does not believe in any atmospheric agency, save that damp, organically-polluted air may be a medium in which the specific germ may propagate and multiply itself.

Having thus admitted influenza into the class of infectious diseases, it remains to be seen whether we can turn this knowledge to the same practical account with regard to prophylaxis as we have done with others of its class. But here, unfortunately, so far as our imperfect knowledge of its ætiology and natural history yet extends, our powers, both preventive and remedial, are very limited. As regards prophylaxis, the disease does not appear to associate itself *especially* with insanitary surroundings. Inefficient ventilation, it is true, favours its spread, but this favours the spread of all disease, and has no special bearing on influenza; indeed, the disease would appear to have a special incidence upon the better-class houses of a community.

From the fact that it affects all age-periods very much alike (but preferably those in the money-earning years of life), and that such a large proportion of the community is struck down (frequently amounting to a quarter of the population), early isolation could not possibly be *generally* enforced; and further obstacles are presented to the adoption of this preventive measure by the rapidity with which the disease develops into an epidemic, due to the comparatively general susceptibility to the disease and to the existence of many slight and unrecognised cases. Notification appears to offer little hope of bearing good fruit, for, as has been well shown by Dr. Sisley, the mischief would have been done before notification could be acted upon, and sanitary interference and precautions would come too late to stay the epidemic.

Improvement of the general health and well-being of the population might be supposed to do something towards mitigating the extent and severity of another epidemic, and it is probable the true cause why Britain suffered less than any other country may reside in its more healthy sanitary conditions.

Disinfection of all infected articles should be rigorously practised, especial care being given to the sputum; and healthy persons should be warned against exposing themselves. The first case in a household should always be carefully isolated, and the public should be warned against exposure to cold and fatigue or the abuse of alcohol.

As the result of yet another year's working of the **Notification**

of Infectious Diseases Act, the Act proves itself to be one of growing utility. In addition to the diseases scheduled in the Act — which are small-pox, cholera, diphtheria, membranous croup, erysipelas, scarlet fever, typhus, enteric fever, relapsing fever, continued fever, and puerperal fever—the sanitary authority has the power (with the sanction of the Local Government Board) to include any other infectious disease; such as measles, whooping cough, etc. A matter which has met with a large amount of consideration and discussion at the hands of medical officers of health during the past year is the advisability of including **measles as a notifiable disease**. Opinion seems very much divided upon this subject, and it is undoubtedly quite a question as to whether anything like a complete notification of measles would be ensured by legislation; and granting that it would, without sufficient hospital accommodation for effectual and thorough isolation, the results would doubtless end in a dead letter. Our powers with regard to measles are practically limited to isolation and disinfection—we have nothing to prove its direct relation to bad water or milk, and defective drainage, etc.; and isolation in such a disease, so sudden and widespread in its incidence of attack, is an undertaking and a responsibility not to be lightly entered upon. There is, moreover, a strong sentimental difficulty to be faced in including measles among the notifiable diseases. There is a widespread and deep-rooted conviction among the masses that the disease is quite a trivial one, which is almost as inevitable to infant life as the teething process; there are few mothers who, strong in this conviction, would not exercise every means in their power to prevent the removal of their little children to the dreaded fever hospital, and it is seldom that the poorer section of the community have the means of efficient isolation at home. That measles is claiming a large number of infant lives yearly is an alarming fact, in the face of these obstacles against coping with it in the most effectual manner, *i.e.*, by making it a compulsorily notifiable disease; but before such a course is adopted, it is necessary to deal with the false impressions and sentiment which obtain and which would make its inclusion useless. It seems that the public should be first educated upon the subject of measles and the duty which they owe to their neighbours. Printed handbills should be distributed, setting forth the fact of the great mortality from measles, and pointing out that there is no more reason why a child should be attacked by measles than by scarlet fever; the value of isolation, when complete, together with disinfection, should be insisted upon; the facts that the disease is frequently the handmaiden to consumption, etc., that it

is characterised by high infectivity in its early stages, and that neglect on the mother's part may lead to numerous other cases, many of which in the ordinary course of events will end fatally, should all be adduced; and thus the community would be prepared, intellectually and morally, for the adoption of the disease as a notifiable one, and the result of its inclusion in the list might be looked forward to with every confidence of success. The experiment is, apart from these measures, too onerous and expensive to be rushed into haphazardly.

The subject of the spread of **tuberculosis** through the means of the flesh and milk of tubercular animals, has received—as befits its importance—considerable attention throughout the past year. We are indebted to Villemin for first demonstrating the communicability of tuberculosis from animal to animal, but it was reserved for Koch to demonstrate the invariable presence and to describe the characteristics of the specific micro-organism. Thanks to these two pioneers, and to the work of numerous subsequent investigators, prominent among whom stand Sims Woodhead, MacFadyen, Watson Cheyne, and Bang, consumption is now regarded to a large extent as a preventable infectious disease, which is spread mainly through the following channels:—(1) The sputum of phthisical patients, which continues, in the dry state, infectious for many months; (2) the milk and flesh of tuberculous animals; (3) the discharges from tubercular skin lesions; and (4) the fæces of infants affected with the disease, etc.

With regard to the transmission of tuberculosis through the milk of tubercular cows, many investigators have combined to teach us the universal infectivity of such milk when drawn from those animals in which there are tubercular lesions in the udder, and the not infrequent infectivity of the milk in those cases when no such udder lesions exist, but when the animal is suffering from general tuberculosis.

Dr. Newsholme, in his annual report of the health of Brighton, deals very lucidly with the question of the condemnation of the flesh of tubercular animals, in view of the very strong probability that much disease is thereby conveyed. He points out that the only question now remaining as regards tuberculous meat (when the disease affects more than one part of the body) is whether part of the animal or the whole should be condemned. There is no difference of opinion as to the necessity of destroying the part obviously diseased, but in practice it is very difficult completely to separate diseased from apparently healthy parts. There is no difference of opinion, again, as to the necessity for condemning the whole of tuberculous carcasses when wasting has occurred.

The real question remaining, therefore, is whether in the event of tuberculosis affecting several internal organs, but without having as yet produced wasting of the flesh, the whole or any part of the carcase should be condemned. It is admitted by all that tuberculosis is due to a living micro-organism, and that this may be inoculated into the system through raw places, inhaled by the breath, and may in certain circumstances be absorbed by the alimentary canal. The great frequency of mesenteric disease in young children, which is almost certainly derived in a large number of cases from tubercular milk, is an unhappy proof of the last mode of infection. This being so, one is at a loss to understand why comparatively early but widespread tuberculosis without emaciation should be considered less infectious than tuberculosis accompanied by emaciation. Birch-Hirschfeld and Schmal have recently shown that the bacilli of tuberculosis, or their spores, in travelling from one organ to another, must pass through the general lymphatic or blood system; and it is impossible to guarantee that at any given time the flesh through which these are circulating is free from infection, although no lesions have been locally produced.

Dr. Newsholme holds that the incidental presence or absence of emaciation is absolutely irrelevant, tuberculosis being an infective disease contaminating the whole animal in either case; and there will be found few to disagree with him, for the whole of the animal's blood must be infected with the bacilli tuberculosis, and who shall say that no part of the carcase of such an animal may not be given in a raw condition to infants and invalids?

Much interest and discussion upon the subject of the use of cupric sulphate as a colouring agent of **tinned peas** has been evoked by an important case of supposed poisoning by this means tried at Glasgow in the early spring. Expert opinion still remains very conflicting as to the danger or innocuousness of the practice as generally followed. The peas are treated with a solution of cupric sulphate. This is almost immediately poured off, and the peas are afterwards well washed with water. They are next boiled in their tins, and then soldered up. The consensus of opinion rather tended in the direction of the innocuousness of the copper salt formed by the action of the copper on the peas, either on account of its difficulty of solution or from the very small quantities of copper in question. A writer in the *Chem. Zeit.* attributes the coloration to the formation of a copper salt of an acid derived from phyllocyanin—which body is very inert and insoluble in water, hydrochloric acid, and acetic acid, though soluble in alcohol. The experiments of W. Ogilvie and M'Lean Wilson

(which were prompted by the conflicting evidence in the case above mentioned) point, however, very conclusively to the danger arising from the employment of the copper salt as a colouring agent. Both these investigators separated the colouring matter yielded by the copper to the peas; and the former, by experiments upon mice and also his own body, showed that the organic salts of copper thus obtained were absorbed by the alimentary canal of man and mice, that they tend to accumulate in the liver, are partially excreted in the urine, and probably to a less extent by the salivary glands. The latter experimenter found the copper compound to be soluble in distilled water, to which a drop of hydrochloric acid and a teaspoonful of Benger's liquor pepticus had been added, the whole being kept at a temperature of 98° F. for several hours.

It thus seems that the old theory, that the copper formed with the legumen of the peas a compound which is insoluble by the gastro-intestinal secretions, will have to be abandoned; but the subject is both an interesting and important one, and demands further investigation.

Finally, the question of **river-pollution** has during the year engrossed the attention alike of local authorities and sanitarians, and there can be no questioning the vital importance of the subject. We are constantly seeing, both at home and abroad, the evil consequences of polluted streams upon the health of those who aggregate along their banks. In Paris the water-supply has been the topic of the year, and some amount of the much-needed purification of the Seine may be counted upon in the immediate future.

In ordinary circumstances, it does not do to trust to the self-purifying powers of the water, however advantageous the conditions under which these are permitted to act. **Dr. Alessandro Serafini** has performed many laborious and careful experiments, and has recently issued a pamphlet upon the subject which well repays a careful perusal. He first reviews all the previous investigations, which went to show that the organic substances, the ammonia and the bacteria, diminished at a comparatively short distance from the point at which the pollution gained access to the river; whereas the oxidised products of organic decomposition, such as nitrates, nitrites, and sulphates, increased in amount. He next points out the great diversity of opinion which exists as to the amount and the length of flow necessary to the production of any such natural purification, and accentuates the fact that the English Commission of 1868, valuable as its results were, did not make any study of the bacteriological contents of the water.

Signor Serafini concludes, from the results of his careful experiments, that the self-purification of rivers is less a matter of oxidation (even under the most favourable conditions) than we are wont to believe, and he attributes the rapid diminution of the bacteria introduced by sewage to the resultant of a complexity of factors—*i.e.*, to sedimentation, dilution, the mechanical action of suspended matters which are deposited on the bottom, to the movement of the water, to the low temperature, to superficial filtration on the bed of the river, and perhaps also to a certain action of the water *per se*. The self-purification from organic substances and the intermediary products of their decomposition depends, he holds, upon sedimentation, dilution, and slow and continued processes of oxidation *in the bed of the river*. He finds that the water, as it flows upon the bed of the river, sets free the nitrates and nitrites that are formed in the zone in which sedimentation gradually takes place; and that it is in these ways that the rapid appearance of nitrates (and nitrites to a less extent), which increase *pari passu* with the diminution of organic matter and ammonia, is accounted for.

The Public Health (London) Act, 1891, came into force in 1892. It not only consolidates the various Acts under which the sanitary administration of London was carried on, but gives greatly increased powers to the sanitary authorities.

SELECTED LIST OF NEW BOOKS, NEW EDITIONS AND TRANSLATIONS.

DISEASES OF THE HEART AND CIRCULATION.

- Ballance, Charles A.—“A Treatise on the Ligation of the Great Arteries in Continuity, with observations on the Nature, Progress, and Treatment of Aneurysm.” London and New York. *Macmillan and Co.*
- Duval, P. E. M.—“Veines Jugulaires Superficielles.” “Tronc Artériel Thyro-Cervical.” Paris. *Steinheil.*
- V. Frey, M.—“Die Untersuchung des Pulses.” Berlin. *Julius Springer.*
- V. Limbeck, R. R.—“Grundriss einer klinischen Pathologie des Blutes.” Jena. *Gustav Fischer.*

DISEASES OF THE LUNGS AND ORGANS OF RESPIRATION.

- Auld, A. G.—“The Pathological Histology of Bronchial Affections, Pneumonia, and Fibroid Pneumonia.” London. *J. and A. Churchill.*
- Fox, Wilson.—“A Treatise of Diseases of the Lungs and Pleura.” Edited by Sidney Coupland. London. *J. and A. Churchill.*
- Guttmann, Paul.—“Lehrbuch der klinischen Untersuchungs-methoden für die Brust- und Unterleibs-Organen mit Einschluss der Laryngoscope.” Ste Auf. Berlin. *A. Hirschwald.*
- Hirsch, J.—“Die Diphtherie und ihre erfolgreiche Behandlung auf Grund vieljaehriger Erfahrungen.” Leipzig, 1891. *W. Engelmann.*
- Maydl, Carl.—“Ueber Echinokokkus der Pleura und die ihn vortäuschenden Localisationen der Echinokokkenkrankheit.” Wien, 1891. *J. Safar.*
- Thorne, R. Thorne.—“Diphtheria; its Natural History and Prevention,” being the Milroy lectures delivered before the Royal College of Physicians of London, 1891. London and New York, 1891. *Macmillan and Co.*

DISEASES OF THE NERVOUS SYSTEM, INCLUDING INSANITY.

- “Atlas der Pathologischen Histologie des Nervensystems.” Redigirt von Professor V. Babes und P. Blocq. 1. Lief. “Die krankhaften Veraenderungen der Muskelnerven und deren Endigungen.” Berlin. *A. Hirschwald.*
- Bourneville.—“Recueil de Mémoires, Notes,

- et Observations sur l'Idiotie.” Vol. I. Paris. *Bureau du “Progrès Médical.”*
- Buzzard, Thomas.—“On the Simulation of Hysteria by Organic Disease of the Nervous System.” London. *J. and A. Churchill.*
- Charcot.—“Clinique des Maladies du Système Nerveux.” Tome I. Paris. *“Progrès Médical.”*
- Gowers, W. R.—“A Manual of Diseases of the Nervous System.” 2nd ed. Vol. I. London. *J. and A. Churchill.*
- Holst, V.—“Die Behandlung der Hysterie, der Neurasthenie und aehnlicher allgemeinen functionellen Neurosen.” 3. Aufl. Stuttgart. *F. Enke.*
- Knapp, Philip Coombs.—“The Pathology, Diagnosis, and Treatment of Intracranial Growths.” Boston. *Rockwell and Churchill.*
- Krafft-Ebing, R. von.—“Neue Forschungen auf dem Gebiet der Psychopathia sexualis; eine medicinisch-psychologische Studie.” 2. Aufl. Stuttgart. *F. Enke.*
- La Tourette, Gilles de.—“Traité Clinique et Thérapeutique de l'Hystérie d'après l'Enseignement de la Salpêtrière.” Paris. *Plon et Cie.*
- Löwenfeld, L.—“Die nervoösen Störungen sexuellen Ursprungs.” Wiesbaden. *J. F. Bergmann.*
- Magnan et Serieux, P.—“Le Délire Chronique à Évolution Systématique.” Paris. *Gauthier-Villars et Fils.*
- Mosso, Angelo.—“La Fatica.” Milano. *Frat. Treves.*
- Ormerod, J. A.—“Diseases of the Nervous System.” London. *J. and A. Churchill.*
- Shaw, James.—“Epitome of Mental Diseases, etc.” Bristol. *J. Wright and Co.*
- Sighele, Scipio.—“La folla delinquente.” Torino, 1891. *Frat. Bocca.*
- Tenchini, Lorenzo.—“Cervelli di delinquenti (superficie interna); ricerche di anatomia.” Parma, 1891. *L. Batteri.*
- Winslow, L. Forbes.—“Uncontrollable Drunkenness.” London. *Henderson and Spalding.*
- Allaman, Camille.—“Des Aliénés Criminels.” Paris. *Baillière et Fils.*

DISEASES OF THE STOMACH, INTESTINES, LIVER, etc.

- Allingham, Herbert W.—“Colotomy, Inguinal, Lumbar, and Transverse, for Cancer or Stricture, with Ulceration of

- the Large Intestine." London. *Baillière, Tindall and Cox.*
- Bouveret, L., et Devic, E.—"La Dyspepsie par Hypersécrétion Gastrique (Maladie de Reichmann)." Paris. *Baillard et Fils.*
- Debouc et Remond.—"Lavage de l'Estomac." Paris. *Rueff.*
- Ewald, C. A.—"Diseases of the Digestive Organs." Vol. I. 3rd ed. Translated by Robert Saundby. London. *New Sydenham Society*
- "Diseases of the Digestive Organs." Vol. II. Translated from the latest German edition by Robert Saundby. London. *New Sydenham Society.*
- Hanot, V.—"Cirrhose hypertrophique avec Ictère chronique." Paris. *Tueff.*
- Riedel.—"Erfahrungen ueber die Gallensteinkrankheit mit und ohne Icterus." Berlin.
- Robson, A. W. Mayo.—"On Gall-stones and their Treatment." London. *Cassell and Co.*

DISEASES OF THE KIDNEY.

- Terrier, Félix, et Baudoin, Marcel.—"De l'Hydronéphrose intermittente."

GOUT.

- Pfeiffer, Emil.—"Die Gicht und ihre erfolgreiche Behandlung." 2. Aufl. Wiesbaden. *J. F. Bergmann.*

INFECTIOUS FEVERS.

- Yeo, I. Burney.—"The Treatment of Typhoid Fever, especially by 'Antiseptic' Remedies." London, Paris, and Melbourne. *Cassell and Co.*

GENERAL SURGERY.

- Caird, Francis M., Cathcart, Charles W.—"A Surgical Handbook." 4th ed. revised. London. *Charles Griffin and Co.*
- Crowle, T. H. R.—"Pye's Surgical Handicraft." 3rd ed. Bristol. *John Wright and Co.*
- Hamilton, Frank Hastings.—"A Practical Treatise on Fractures and Dislocations." London. *Smith, Elder and Co.*
- Jessett, Frederic Bowreman.—"Cancer of the Mouth, Tongue, and Œsophagus: their pathology, symptoms, diagnosis, and treatment." London. *Baillière, Tindall and Cox.*
- Jungengel, Max.—"Die Hauttransplantation nach Thiersch." Würzburg. *Der Stadel schenk Hof und Universitaets Buch- und kunsthandlung.*
- Kilkelly, C. R.—"Introduction to the Antiseptic Treatment of Wounds according to the Method in use at Professor Billroth's Clinic, Vienna." Translated with the author's permission from the German of Dr. Victor von Hacker. London. *Percival and Co.*

- Smith, J. Greig.—"Abdominal Surgery." 4th ed. London. *J. and A. Churchill.*
- Treves, Frederick.—"A Manual of Operative Surgery." London, Paris and Melbourne. *Cassell and Co.*
- Wharton, Henry R.—"Minor Surgery and Bandaging." Edinburgh and London. *Young J. Pentland.*

SURGICAL DISEASES OF CHILDREN.

- Ballantyne, J. W.—"An Introduction to the Diseases of Infancy." Edinburgh. *Oliver and Boyd.*
- Muskett, Philip E.—"Prescribing and Treatment in the Diseases of Infants and Children." Edinburgh and London. *Young J. Pentland.*
- Natier, Marcel.—"Polypes Muqueux des Fosses nasales chez les Enfants jusqu'à l'âge de 15 ans." Paris. *Octave Doin.*
- Rose, William.—"On Harelip and Cleft Palate." London. *H. K. Lewis.*

DISEASES OF THE RECTUM.

- Cooper, Alfred, and Edwards, F. Swinford.—"Diseases of the Rectum and Anus."

VENEREAL DISEASES.

- Blaschko, A.—"Die Verbreitung der Syphilis in Berlin." Berlin. *S. Karger.*
- Culver, E. M., and Hayden, J. R.—"A Manual of Venereal Diseases." Philadelphia.
- Fournier, A.—"Die Vererbung der Syphilis." Translated into the German by Dr. Ernest Finger. Leipzig und Wien.
- Gajkiewicz, Dr.—"Syphilis du Système Nerveux." Paris.
- Kaposi, Moriz.—"Pathologie und Therapie der Syphilis." Stuttgart, 1891. *F. Enke.*
- Mallet, H.—"Contribution à l'Etude de l'Épilepsie Syphilitique (Encephalite et Méningitegommeuses)." Paris. *G. Steinheil.*

THE DISEASES OF WOMEN.

- Auvard, A.—"Gynécologie : Sémeiologie Génitale" (Encyclopédie Scientifique des Aide - Mémoire). Paris. *G. Masson, Gauthier, Villars, et Fils.*
- "Traité Pratique de Gynécologie." Paris. *Octave Doin.*
- Finger, Ernest.—"Die Blennorrhoe der Sexualorgane und ihre Complicationen. Nach dem neuesten wissenschaftlichen Standpunkte und zahlreichen eigenen Studien und Untersuchungen." 2. Aufl. Leipzig und Wien, 1891. *F. Deuticke.*
- Jones, H. Macnaughton.—"Practical Manual of Diseases of Women." 5th ed. London. *Baillière, Tindall and Cox.*
- Pozzi, S.—"Traité de Gynécologie clinique et opératoire." 2nd ed. Paris. *Masson.*
- Sutton, J. Bland.—"Surgical Diseases of the Ovaries and Fallopian Tubes, includ-

ing Tubal Pregnancy." London. *Cassell and Co.*

Thomas, T. Gaillard.—"A Practical Treatise on the Diseases of Women." 6th ed. Enlarged and thoroughly revised by Paul F. Munde. London. *J. and A. Churchill.*

MIDWIFERY.

Herman, G. Ernest.—"First Lines in Midwifery; a guide to attendance on natural labour for medical students and midwives." London. *Cassell and Co.*

Ker, Dr. Alice.—"Motherhood; a book for every woman." Manchester and London. *John Heywood.*

Runge, Max.—"Lehrbuch der Geburtshilfe." Berlin. *Julius Springer.*

DISEASES OF THE SKIN.

Brocq, L.—"Traitement des Maladies de la Peau; avec un abrégé de la Symptomatologie du Diagnostic et de l'Étiologie des Dermatoses." 2nd ed. London. *Baillière, Tindall and Cox.*

Jamieson, W. Allan.—"Diseases of the Skin." 3rd ed. Revised and enlarged. Edinburgh. *Young J. Pentland.*

Piffard, Henry.—"Practical Treatise on Diseases of the Skin." London. *Lewis.*

Thin, George.—"Leprosy." London. *Percival and Co.*

DISEASES OF THE EYE.

De Schweinitz, G. F.—"Diseases of the Eye." Philadelphia. *W. B. Saunders.*

Edridge-Green, F. W.—"Colour-Blindness and Colour-Perception." London. *Kegan Paul, Trench, Trübner and Co.*

Ferdinands, George S. P.—"The School Teacher's Ophthalmic Guide." Aberdeen. *D. Wyllie and Son.*

Morton, A. Stanford.—"Refraction of the Eye." London. *H. K. Lewis.*

Snell, Simeon.—"Miners' Nystagmus and its relation to position at work and the Manner of Illumination." London. *Simpkin, Marshall and Co.*

DISEASES OF THE EAR.

Field, G. P.—"Diseases of the Ear." 4th ed. London. *Baillière, Tindall and Cox.*

Politzer, Adam.—"The Anatomical and Histological Dissection of the Human Ear in the Normal and Diseased Condition." Translated by George Stone. London. *Baillière, Tindall and Cox.*

DISEASES OF THE THROAT AND NOSE.

Natier, Marcel.—"Polypes Muqueux des Fosses nasales chez les Enfants jusqu'à l'âge de 15 ans." Paris. *Octave Doin.*

Rosenthal, C. Fr. Th.—"Die Erkrankungen der Nase, deren Nebenhoelen, und des Nasenrachenraumes." Berlin. *A. Hirschwald.*

Stewart, W. R. H.—"Lectures on Otorrhœa and its Complications." 2nd ed. London. *John Bale and Son.*

Watson, W. Spencer.—"Diseases of the Nose and its Accessory Cavities." 2nd ed. London. *H. K. Lewis.*

THERAPEUTICS.

"A System of Practical Therapeutics." Edited by Hobart Amory Hare. 2 vols. Philadelphia. *Young J. Pentland.*

Binz, C.—"Vorlesungen über Pharmakologie für Aerzte und Studierende." 2nd revised ed. Berlin. *August Hirschwald.*

Bocquillon-Limousin, H.—"Formulaire des Médicaments nouveaux et des Médications nouvelles pour 1892." Paris. *J. B. Baillière et Fils.*

Farquharson, Robert.—"A Guide to Therapeutics." 5th ed. London. *Smith, Elder & Co.*

Hayem, Georges.—"Leçons de Thérapeutique." 3me série. Les Médications. Paris. *G. Masson.*

Potter, S. O. L.—"Materia Medica, Pharmacy and Therapeutics." Philadelphia. *Blakiston, Son & Co.*

HYGIENE AND PUBLIC HEALTH.

Arlidge, J. T.—"The Hygiene, Diseases, and Mortality of Occupations." London. *Percival and Co.*

Babinski, Ballet, Brault, Chantemesse, and others.—"Traité de Médecine Publiée sous la Direction de MM. Charcot, Bouchard, Brissaud." Tome I. Paris. *G. Masson.*

Beatson, George Thomas.—"Ambulance Handbook."

Creighton, Charles.—"A History of Epidemics in Britain from A.D. 664 to the Extinction of Plague." Cambridge. *The University Press.*

Gärtner, August.—"Leitfaden der Hygiene." Berlin. *S. Karger.*

Monod, Henri.—"Recueil des Travaux du Comité Consultatif d'Hygiène Publique de France." (Le Choléra, Finistère, 1885-86.) *Imprimerie Administrative.*

Parkes, Edmund A.—"A Manual of Practical Hygiene." 8th ed. London. *J. and A. Churchill.*

Reid, George.—"Practical Sanitation: a handbook for sanitary inspectors and others interested in sanitation." London. *C. Griffin and Co.*

Remondino, P. C.—"History of Circumcision from the Earliest Times to the Present." Philadelphia and London. *F. A. Davis.*

Roberts, R. Lawson.—"Nursing and Hygiene." 2nd ed. London. *H. K. Lewis.*

Roberts, Sir William.—"Selected Con-

- tributions on Digestion and Diet." London. *Smith, Elder & Co.*
- Russell, Rollo.—"Epidemics, Plagues, and Fevers; their causes and prevention." London. *Edward Stanford.*
- Shakespeare, Edward O.—"Report on Cholera in Europe and India." *Washington Government Printing Office.*
- Wilson, George.—"A Handbook of Hygiene and Sanitary Science." London. *J. and A. Churchill.*

ANATOMY.

- Nauwerck, C.—"Sectionstechnik für Studierende und Aerzte." Jena, 1891. *G. Fischer.*
- "Quain's Elements of Anatomy." Edited by E. A. Schaefer and G. D. Thane. 10th ed. Vol. II., Part II. London. *Longmans, Green and Co.*
- Schiefferdecker, P., und A. Kossel.—"Gewebelehre mit besonderer Berücksichtigung des menschlichen Körpers." Braunschweig, 1891. *H. Bruhn.*
- Soames, H. A.—"The Scientific Measurement of Children." London, 1891. *L. V. Gill.*
- "Studies in Anatomy from the Anatomical Department of the Owens College." Vol. I. Manchester. *J. E. Cornish.*

PHYSIOLOGY.

- "Beiträge zur Physiologie." Carl Ludwig zu seiner fünfzigjährigen Doctor-Jubelfeier von der medicinischen Facultät zu Marburg gewidmet. Marburg, 1891. *N. E. Elwert.*
- Campbell, Harry.—"Differences in the Nervous Organisation of Man and Woman, physiological and pathological." London, 1891. *H. K. Lewis.*
- Edlefsen.—"Zur Frage der Entstehung des vesiculären Athmungsgeräusches." Verhandl. d. Cong. f. innere Med. Wiesb., 1891. x, 394-403.
- Foster, M.—"A Text-book of Physiology." 5th ed. Part IV. London. *Macmillan and Co.*
- Harris, V. D., and Power, D'Arcy.—"Manual for the Physiological Laboratory." 5th ed. London. *Baillière, Tindall and Cox.*
- Kruger, Friedrich.—"Die Verdauungsfermente beim Embryo und Neugeborenen." Wiesbaden, 1891. *J. F. Bergmann.*
- Larkin, F. Charles, and Leigh, Randle.—"Outlines of Practical Physiological Chemistry." 2nd ed. London. *Lewis.*
- Marcet, W.—"Researches on the absorption of oxygen and formation of carbonic acid in ordinary human respiration, and in the respiration of air containing an excess of carbonic acid." Proc. Roy. Soc., London, 1891. 1, 58-75.
- Müller, G. Elias.—"Theorie der Muskel-

- contraction." Th. I. Leipzig, 1891. *Veit and Comp.*
- Reinert, Emil.—"Die Zahlung der Blutkörperchen und deren Bedeutung für Diagnose und Therapie." Leipzig, 1891. *F. C. W. Vogel.*
- Waller, Augustus D.—"An Introduction to Human Physiology." London. *Longmans, Green & Co.*

MISCELLANEOUS.

- Adrian, L. A.—"Petit Formulaire des Antiseptiques." Paris. *Octave Doin.*
- Appu, Tukina, and Edaljee, Cawasjee.—"The Practitioner's Vade Mecum." Bombay. *Imperial Press.*
- Bartholow, Roberts.—"A Manual of Hypodermic Medication; the treatment of diseases by the hypodermic or subcutaneous method." 5th ed. Revised and enlarged. Philadelphia. *J. B. Lippincott and Co.*
- Beard, George M., and Rockwell, A. D.—"On the Medical and Surgical Uses of Electricity." New York. *William Wood and Co.*
- Bramwell, Byrom.—"Atlas of Clinical Medicine." Vol. I. Edinburgh. *Constable.*
- "Burdett's Hospital Annual and Year-book of Philanthropy." London. *The Hospital, Limited.*
- Burdett, Henry C.—"Hospitals and Asylums of the World." 4 vols. London. *J. and A. Churchill.*
- Charteris, M.—"The Practice of Medicine." 6th ed. Lond., 1891. *J. and A. Churchill.*
- Cheadle, W. B.—"Principles and Conditions in the Artificial Feeding of Infants." 2nd ed. London. *Smith, Elder.*
- Collins, F. Howard.—"The Diminution of the Jaw in Civilised Races, an effect of Use and Disuse." London and Edinburgh. *Williams and Norgate.*
- Condamin, René.—"Pathogénie des diverses Ostéites." Paris. *J. B. Baillière et Fils.*
- Congrès International d'Anthropologie Criminelle, Actes du 2.—"Biologie et Sociologie" (Paris, 1889). Lyons and Paris, 1890. *A. Storck and G. Masson.*
- Coupland, Sidney.—"Notes on the Examination of the Sputum, Vomit, Fæces, and Blood." 2nd ed. London. *H. K. Lewis.*
- Crooke, George F.—"Post-Graduate Lectures on the Medical Pathology of Tuberculosis." London. *Baillière, Tindall, and Cox.*
- Dennig, Adolf.—"Ueber septische Erkrankungen mit besonderer Berücksichtigung der kryptogenetischen Septicopyæmie." Leipzig, 1891. *F. C. W. Vogel.*
- Eisenberg, James.—"Bacteriological Diagnosis; tabular aids for use in practical work." Translated and augmented with the permission of the author from the second German edition by Norval H. Pierce. Philadelphia and London. *F. A. Davis and Co.*

- Ewald, C. A.—“Handbuch der allgemeinen und speciellen Arzneiverordnungslehre.” 12te Aufl. Dritte Lieferung. Berlin. *August Hirschwald*.
- Fagge, Charles Hilton, and Pye-Smith, P. H.—“Textbook of the Principles and Practice of Medicine.” 2 vols. *Churchill*.
- Finlay, Archibald.—“The Seaman's Medical Guide.” New ed. London and Liverpool. *George Philip and Son*.
- Finlayson, James.—“Clinical Manual for the Study of Medical Cases.” 3rd ed. London. *Smith, Elder and Co.*
- Frey, A.—“Baden-Baden as a Watering-Place; a popular description of its healing properties, their applications and results.” Translated by W. H. Gilbert. Baden-Baden. *F. Spies*.
- Futterer, Gustav.—“Abriss der pathologischen Anatomie.” 2 Aufl. Wiesbaden, 1891. *J. F. Bergmann*.
- Graham, James.—“Hydatid Disease in its Clinical Aspects.” Edinburgh. *Young J. Pentland*.
- Gribble, J. D., and Hehir, P.—“Outlines of Medical Jurisprudence in India.”
- Gunther, Carl.—“Einführung in das Studium der Bakteriologie mit besonderer Berücksichtigung der mikroskopischen Technik.” Für Aerzte und Studierende. 2 Aufl. Leipzig, 1891. *G. Thieme*.
- Haccius, Charles.—“Variolo-Vaccine: contribution à l'étude des rapports qui existent entre la variole et la vaccine.” Avec notes originales de Voigt, Fischer, et Hime. Geneva and Paris.
- Hirst, Barton Cooke, and Piersol, George A.—“Human Monstrosities.” Part I. Philadelphia. *Lea Bros. & Co.*
- Hirst, Barton Cooke, and Piersol, George A.—“Human Monstrosities.” Parts I. and II. Philadelphia. *Young J. Pentland*.
- Huber, J. Ch.—“Bibliographie der klinischen Helminthologie.” Heft 1. *Echinococcus cysticus* bes. von 1877-1890. Heft 2. *Cysticercus cellulosæ* Rud. München. *J. E. Lehmann*.
- Hueppe, Ferdinand.—“Die Methoden der Bakterien-Forschung. Handbuch der gesammten Methoden der Mikrobiologie.” 5 Aufl. Wiesbaden, 1891. *C. W. Kreidel*.
- “International Clinics.” Edited by J. M. Keating, J. P. Crozer Griffith, J. Mitchell Bruce, and David W. Finlay. Edinburgh and London. *Young J. Pentland*.
- “International Clinics.” Edited by J. M. Keating, J. P. Crozer Griffith, J. Mitchell Bruce, and David W. Finlay. 2nd vol. Edinburgh and London. *Young J. Pentland*.
- “Jefferson's Physicians and Surgeons' Register.” Bristol. *John Wright & Co.*
- Keating, John M., and Hamilton, Henry.—“Pocket Medical Lexicon.” London. *H. K. Lewis*.
- Kunze, C. F.—“Compendium der praktischen Medicin in zehnter Auflage neu bearbeitet von Dr. Schilling.” Stuttgart, 1891. *F. Enke*.
- Lescher, F. Harwood.—“Recent Materia Medica.” 4th ed. London. *J. and A. Churchill*.
- Leslie, John T. W.—“On Beri-beri.” Simla. *G. C. Press*.
- Lewis, Percy G.—“The Theory and Practice of Nursing.” London. *The Hospital, Limited*.
- Leydon, E., Guttman, S.—“Die Influenza-Epidemie, 1889-90.” Wiesbaden. *J. F. Bergmann*.
- Longmore, Surg.-Gen. Sir T.—“Richard Wiseman.” London. *Longmans*.
- Macnamara, N. C.—“Asiatic Cholera; History up to July 15th, 1892; Causes and Treatment.” London and New York. *Macmillan & Co.*
- Madden, Thomas More.—“Lucan Spa and Hydropathic as a Modern Health Resort.” Dublin. *M. H. Gill and Son*.
- Maillart, Hector A.—“Etude clinique sur la Grippe pandémique d'après les observations recueillies à l'Hôpital cantonal de Genève pendant l'épidémie de 1889-90.” Genève, 1891. *Tapponnier and Studer*.
- Martindale, W., and Westcott, W. Wynn.—“The Extra Pharmacopœia.” 7th ed. London. *H. K. Lewis*.
- Maunsell, S. E.—“Contributions to the Medico-Military History of Jamaica. A Retrospect.” *Jamaica Government Printing Establishment*.
- Neale, Richard.—“The Medical Digest, or Busy Practitioner's Vade-mecum; being a means of readily acquiring information upon the principal contributions to medical science during the last fifty years.” 3rd ed. London, 1891. *Ledger, Smith and Co.*
- Noeggerath, E.—“Beitraege zur Struktur und Entwicklung des Carcinoms.” Wiesbaden. *J. F. Bergmann*.
- Nolen, W.—“Bacteriologie en Geneeskunde. Rede bij de aanvaarding van het hooglersambt aan de Rijks-Universiteit te Leiden uitgesproken den 4den Februari, 1891.” Rotterdam, 1891. *W. J. van Hengel*.
- Oliver, Thomas.—“Lead Poisoning.” Edinburgh. *Young J. Pentland*.
- Page, R. C. M.—“A Textbook of the Practice of Medicine for the Use of Students and Practitioners.” New York. *William Ward and Co.*
- Ribbert, Hugo.—“Die Pathologische Anatomie und die Heilung der durch den Staphylokokkus pyogenes aureus hervorgerufenen Erkrankungen.” Bonn, 1891. *F. Cohen*.
- Sacharjin, G. A.—“Klinische Vortraege.” Berlin. *A. Hirschwald*.
- Sawyer, Sir James.—“Contributions to Practical Medicine.” 2nd ed. Revised and much enlarged. Birmingham, 1891. *Cornish Bros.*
- Seifert, Otto, and Friedrich Müller.—“Taschenbuch der medizinisch-klinischen Diagnostik.” 7 Aufl. Wiesbaden, 1891. *J. F. Bergmann*.
- Squire, Peter Wyatt.—“Methods and Formulæ used in the preparation of

- Animal and Vegetable Tissues for Microscopical Examination, including the staining of Bacteria." London. *J. and A. Churchill.*
- Steven, J. Lindsay.—"The Pathology of Mediastinal Tumours, with special reference to Diagnosis." London. *H. K. Lewis.*
- "Studies from the Pathological Laboratory of the College of Physicians and Surgeons." (Columbia College, New York.)
- Sutton, Henry Gawen.—"Lectures on Pathology." Edited by M. E. Paul and revised by S. Wilks. London. *J. and A. Churchill.*
- Tanner, Thomas Hawkes.—"An Index of Diseases and their Treatment." 4th ed. Revised by Percy Boulton. London. *Henry Renshaw.*
- Taylor, Frederick.—"A Manual of the Practice of Medicine." 2nd ed. London, 1891. *J. and A. Churchill.*
- Vierordt, Oswald.—"A Clinical Textbook of Medical Diagnosis." Translated by Francis H. Stuart. Edinburgh and London. *Young J. Pentland.*
- Virchow, Rudolf.—"Festschrift zu seinem 71ten Geburtstage, gewidmet von den früheren und jetzigen Assistenten des Pathologischen Instituts, Berlin." *G. Reimer.*
- — — "Internationale Beitræge zur wissenschaftlichen Medicin, gewidmet zur Vollendung seines 70 Lebensjahres." Berlin. *A. Hirschwald.*
- Wallbridge, J. S., and Rowland, E. D.—"The British Guiana Medical Annual."
- Wilson, Daniel.—"The Right Hand: Left-handedness." London and New York, 1891. *Macmillan and Co.*
- Woodhead, G. Sims.—"Practical Pathology." 3rd ed. Edinburgh and London. *Young J. Pentland.*
- Zuccarelli, Angelo.—"Degeneratione e delinquenza; saggi di anthropologia criminale." Raccolta di osservazioni. Napoli, 1891. *A. Tocco.*

INDEX TO AUTHORS QUOTED.

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"I have to acknowledge duly having received the Ingluvine from Messrs. W. R. WARNER & Co., which you were good enough to send me for the purpose of proving the therapeutic effects of this excellent medicine amongst my clients.

"The results which I have obtained in my dispensary for sick children, together with my private cases, have been extremely satisfactory. In fact, I have treated various cases of dyspepsia, in which the patients, fully prostrated and without power to digest their food, have, thanks to the use of Ingluvine, been rapidly cured.

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